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Original Articles.

ARTHRITIS DEFORMANS.

THE REPORT OF A SERIES OF ONE HUNDRED AND TEN CASES FROM THE JOHNS HOPKINS HOSPITAL.

(FROM THE CLINIC OF PROFESSOR OSLER.)*

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There is no intention in this paper to make any attempt to discuss the many debatable points relative to arthritis deformans. There is, perhaps, no common disease in the calendar about which we have as little exact knowledge. Much misapprehension has been caused by the use of names which suggest that this disease has some association with rheumatism. Beginning with the very name to be given to it, we have great diversity of opinion, which continues through the etiology and pathology of the disease. Dr. Bradford[1] has recently described well the chaotic condition of our knowledge, or rather lack of it, and laid emphasis on the necessity of more careful study of the disease. We are to-day really proving the truth of words spoken by Haygarth in 1805, who said: "The term rheumatism has been applied without sufficient discrimination to a great variety of disorders, which, except pain, have but few symptoms that connect them together."

In the present paper a series of 110 cases which have occurred in the Johns Hopkins Hospital are reported. The clinical features will be especially discussed. A point of much importance is the relative frequency of the disease. With the present confusion of our knowledge of the disease, any statistical figures seem to possess but little value. As some of the cases here reported suggest strongly that one type of the disease is very commonly taken for acute articular rheumatism, and as probably one other form of the disease—spondylitis—has usually been overlooked, statistics are only likely to lead to false conclusions. It probably occurs less frequently than true articular rheumatism, but the difference in number may not be as great as we have usually thought.

One point to which special attention will be drawn is the study of early diagnosis. How much we can do to prevent the later manifestations of the disease by recognition and treatment of the early conditions is difficult to say. Certainly we are in a position to try, whereas by making a diagnosis only when the damage is done, treatment then can only be palliative.

PATHOLOGY.

Of this we have but little accurate knowledge. With the etiologic feature unknown we can only discuss the morbid anatomy and not the pathologic basis. In the usual descriptions of the disease we have given only the later changes, many of which are degenerative. That the early acute conditions have received little attention is natural, for the material has been lacking. Patients rarely die of the disease, and certainly not in the early stages. Dr. White[2] has recently reported the result of an autopsy on a comparatively early case. It is to be hoped that no like opportunity for examination of such a case will be missed.

The two great views of the etiology—namely, the infective (either due to a specific organism or to a variety of organisms) and the neural—need not be discussed. The clinical features of this series seem rather to point toward an infective cause, although our cultural results have been negative.

Some writers suggest that under the term arthritis deformans we have really two diseases. Whether or not this be correct, we can distinguish two types of cases, one in which the bony changes, especially hypertrophy, predominate, often termed the "osteoarthritic," and the other in which the joint structures other than the bony parts are especially involved, sometimes termed "rheumatoid." These are usually distinctly different conditions. Do they represent different diseases, or are they varying manifestations of the same disease? The answer is difficult at present, but there seems little doubt of the co-existence of lesions of both types in some patients. Thus, in patients with spondylitis usually regarded as being "osteoarthritic" we may find involvement of other joints with the condition regarded as "rheumatoid."[3] Whether the same etiologic factor is active in both, it is at present impossible to say.

Some reference should be made to the association of arthritis deformans and rheumatism. Some writers describe arthritis deformans as coming on after acute rheumatism. The two diseases may have occurred in the same patient, but it is not any more likely than that rheumatism and gout should have done so. If we see a patient in successive attacks of acute polyarthritis which we regard as acute rheumatism, until he comes back, perhaps, with a tophus, do we say that gout has followed acute rheumatism? If we are honest, we frankly admit our error in mistaking the nature of the arthritis. Why not the same in regard to arthritis deformans? When a patient comes with undoubted manifestations of this disease it seems more reasonable to consider previous acute attacks to have been of the same nature. The two diseases may have occurred in the same patient, but it seems more probable that the acute attacks were of arthritis deformans than acute rheumatism. The large number of cases to be noted later sup-

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. J. M. Anders, Frank A. Jones and W. S. Thayer.

1. American Medicine, 1902, iv, 17.

2. Guy's Hospital Reports, lvii.

3. The use of the term "rheumatoid" is to be regretted. Everything suggesting any association with rheumatism should, in my opinion, be eliminated. I have used the term "polyarticular" to designate the group in which these lesions especially occur.

port this view. It seems most reasonable to hold that arthritis deformans is distinct from acute rheumatism.

For clinical study it is necessary to divide the cases, and in this report the following classes are used:

1. Heberden's nodes.
2. Polyarticular form (excluding the spondylitis cases, which are in one sense polyarticular).
3. Monarticular form.
4. Spondylitis.

It must be understood that the lines between these are not always definite. A patient with spondylitis or Heberden's nodes may have general polyarticular involvement, although this mixing of the types is not very common.

The statistics for the whole series will first be given, and afterward each group will be discussed in detail. That the present series gives any guide to the relative frequency of various groups is not probable. This is especially to be kept in mind in reference to the cases with local involvement of the spine. The cases of general spinal involvement offer but little difficulty in recognition, but we have only recently learned to recognize the other cases, and therefore their absence in the records of previous years has been due to non-recognition. These cases occur especially in males, and doubtless future records will show a more equal distribution between the sexes than previous ones have done. It will be seen that in this series the males and females are equal, rather unusual in any large series.

It may be noted that no cases with Heberden's nodes only are included in this series. Two cases of the so-called "Still's disease" are included in the polyarticular group. These cases are somewhat doubtful, but it seems most reasonable to consider them as arthritis deformans.

GENERAL STATISTICS.

Incidence.—In the present series of 110 cases, 55 were males and 55 females. The white patients numbered 106, the colored only 4, 2 of whom were males and 2 females. The small number of colored patients with the disease is of considerable interest, especially in reference to the association of previous septic conditions as etiologic factors. The colored race is susceptible to the majority of infections, and especially gonorrhea. While in the hospital the proportion of white to colored is as about 7 to 1, the incidence of arthritis deformans is about 26 to 1. The negro is also apparently rather more prone to acute articular rheumatism, as has been elsewhere brought out,[4] the proportion in this clinic of white and colored with this disease being as 4.8 to 1.

Conjugal Condition.—Fifty-three of the patients were married, 41 single, and 16 were widows or widowers.

Nationality.—It is interesting to note the preponderance of the native-born. Ninety-six were born on this continent, and only 14 abroad. Of these, 8 were German, 2 Irish, 1 each English, Bohemian, Russian and Pole.

Occupation.—The largest number were engaged in housework of various kinds, namely, 47. Seven others were engaged in similar occupations, such as sewing, washing, etc. The next largest group comprised 24 cases; they were merchants, clerks, teachers, etc. There were 11 farmers and 10 engaged in laborers' and mechanics' work. The remainder were of no especial occupation. The proportion engaged in occupations involving special exposure to wet, damp, etc., is seen to be surprisingly small.

Age.—The age of patients on admission was as follows:

1 to 10	2	51 to 60	19
11 to 20	5	61 to 70	7
21 to 30	19	71 to 80	2
31 to 40	35	81 to 90	1
41 to 50	17		

The youngest patient was aged 4 (a case of "Still's disease"), the oldest 83, with Heberden's nodes and some changes in other joints.

Complaint.—The complaints made by the patients were very various. By far the largest group (36) complained of "rheumatism"; 23 complained of general joint symptoms, pain, stiffness and swelling; 20 complained especially of the pain; 10 of stiffness of the back, and the remainder of various things—6 of loss of power in the legs and difficulty in walking; 3 of sciatica; 2 of neuritis, etc.

Family History.—The family history is of interest. The difficulty in obtaining an exact description of an arthritis in the family history is well known. There was a definite family history of arthritis in 44 cases. Of these, 10 were undoubtedly arthritis deformans, 22 were given as rheumatism, 1 as gout, and in 11 the nature was unknown. Endeavor was made to find out if the disease developed earlier in the patients who had a family history of arthritis than in the others. The results are given in tabular form:

Age.	Age of onset with a family history of arthritis.		Percentage.	General percentage of onset in all.
1 to 10	7	=	16	11
11 to 20	10	=	23	20
21 to 30	9	=	21	20
31 to 40	7	=	16	22
41 to 50	4	=	9	9
51 to 60	4	=	9	12
61 to 70	2	=	5	3
71 to 80	0	=	0	2

One case was doubtful, and is not included in the first column, and two are doubtful in the second. The percentages are so nearly alike that no positive conclusion can be drawn, although the cases with a history of arthritis show a slightly larger percentage for the earlier decades. There was a family history of tuberculosis in 28 cases, and in 9 this was associated with arthritis.

Previous History.—Of the ordinary acute infections, measles is by far the most common, a history of it being obtained in 68 cases. Following this came whooping cough in 31, mumps in 20, scarlet fever and malaria each in 18, chicken-pox and influenza each in 13, typhoid fever in 10, pneumonia in 7, diphtheria in 5, smallpox and erysipelas in 2 each. Tonsillitis in recurring attacks was noted only in 3 cases. There was one instance each of otitis media, bronchitis, pleurisy and carbuncles. There was a previous history of gonorrhea obtained in only 14 cases, or about 13 per cent. This, it will be noted, is in striking contrast to the percentage of 40, given in Dr. Stewart's[5] Montreal statistics. There was a history of syphilis in 4 and of chancroid in 1. Dyspepsia had been a prominent feature in 3 cases, and dysentery or diarrhea in 2. Four patients gave a history of nervous prostration; 2 insisted especially on their severe mental strain and worry for some years; 1 of great physical hardship, and 2 of working in especially damp surroundings. In regard to this latter, attention should be drawn to its apparent rarity in this series, as so many of the writers lay great stress on its importance as an etiologic factor.

4. McCrae: The Journal A. M. A., Jan. 24, 1903.

5. Stewart: Brit. Med. Jour., 1897, ii, p. 1225.

Alcoholic History.—Twenty-seven of the patients had used alcohol, 6 described as heavy drinkers, the remainder moderate. This is in striking contrast to the figures given in the series of gout cases reported from this clinic, where practically all were alcoholics.

Pregnancy and Miscarriage.—Twenty-six of the female patients had borne children, and seven had had miscarriages, varying in number from 1 to 4. Five patients had both borne children and had miscarriages.

Onset.—This was apparently associated with some condition in 28 cases. The patients, at any rate, thought there was some association. In 7 cases the onset was associated with exposure to cold and wet; in 3 each the onset was apparently associated with injury, diarrhea or dysentery, confinement, an attack of influenza, and an attack of measles; 2 followed closely after typhoid fever; and in 1 each it was associated with the following conditions: Very marked mental strain, constant physical strain, miscarriage and the menopause. The small number associated with exposure is to be noted. Our series of cases of acute rheumatism gave practically double the percentage. In one-half of all the cases the onset was before the age of 30, and in about one-third, before 20.

In the further study of the clinical types it is much more convenient to study each of the groups previously mentioned separately.

GROUP I. HEBERDEN'S NODES.

This clinical group requires but little discussion. Generally accepted as undoubted manifestations of arthritis deformans, anatomically, this must be considered as usually belonging to the osteoarthritic type previously referred to. No figures as to the relative frequency of their occurrence can be given. There can be little doubt that the general idea that they are rarely associated with the more severe manifestations of the disease in other joints is substantially correct. In the present series, Heberden's nodes occurred in association with manifestations in other joints only nine times among the 94 polyarticular cases. Of these 9, in 4 the other manifestations were slight; in 3, moderate, and in 2, severe. They did not occur in association with any of the cases of spondylitis. As to the idea of Charcot that patients having these nodes were especially prone to cancer, I have no figures to offer. Certainly, one sees the association not infrequently. One point of interest in this group is the association of these lesions which we term "osteoarthritic," with those in other joints which are undoubtedly more of the "rheumatoid type." That this does occur there can be no question. It certainly speaks for a possible association of the two types.

Frankly, we have to confess that of accurate knowledge as to Heberden's nodes we have little. It can be summed up by saying that these bony outgrowths at the terminal phalangeal joints of the fingers rarely cause any troublesome symptoms, usually occur without the larger joints being involved, but may be associated with the other manifestations of the disease, although these cases are comparatively rare. In one particular they agree with the lesions in the other joints, namely, they are susceptible to injury. A blow on an affected joint is nearly always followed by some increase in the local symptoms, exactly as in the larger joints. Curiously enough, just as this was being written a patient came under observation with Heberden's nodes showing an unusual condition. She came on account of another disease. There was marked deformity of the terminal finger joints, and definite crepitus was obtained in some of them, an unusual thing in such cases in our experience.

GROUP II. POLYARTICULAR CASES.

This comprises by far the largest number of cases in this series. There are 92, to which may be added 2 cases of "Still's disease," although in the tables these are kept separate. These cases and their clinical features show many variations, but an attempt will be made to classify them, at any rate to some extent. As already said, the changes are largely of the "periarticular" kind, and the bony changes are secondary.

Onset.—The ages at onset of these cases are shown in the following table:

1 to 10	11	41 to 50	10
11 to 20	17	51 to 60	11
21 to 30	18	61 to 70	2
31 to 40	22	71 to 80	1

Method of Onset.—This is of especial interest. On studying the cases, one finds two fairly definite kinds of onset can be recognized, namely, a sudden and a gradual beginning. Of the 92 cases in this group, the method of onset was doubtful in 6, in 45 it was gradual (in 31 of these several joints being involved together at the beginning, and in 14 one joint, others following some time later); in 41 cases the onset was sudden, in 19 of these in one joint, and in 21 in many joints about the same time. In one case the onset was in the joints of the neck. Especial attention is directed to the number of cases showing a sudden mode of onset. So many of the descriptions of the disease lead one to believe that the sudden onset is unusual, and that we see, ordinarily, a slow, gradually advancing arthritis. This point will be especially dealt with later. Of the 2 cases of "Still's disease," in 1 the onset was gradual in one joint, and in the other sudden in many joints.

The Joint First Involved.—This was as follows: 3, no definite history; 28, many joints involved; 3, the neck joint first involved; 5, the shoulders, 3 being only in one shoulder; 4, one arm; 1, an elbow; 3, a wrist; 1, a thumb; 1, a single finger; 1, both hands; 9, one hip; 10, one knee; 3, both knees; 1, knees and elbows both; 1, both ankles; 1, one ankle; 10, the feet; 3, the great toe; 2, other toes; 2, the joints of one leg.

The Character of the Attacks.—It is, of course, impossible in a disease such as this to definitely classify all the cases or the attacks. There is so much variation in the order of the joints involved, the character of the successive attacks, etc., that only an approximate classification is possible. Considering the course of the disease, perhaps three groups may be recognized. The first of these is the slow, progressive type, in which, after either an acute or a gradual onset, the symptoms slowly advance, joint after joint being involved. This may go on for a great many years. Of this class there are 44 cases. In sharp distinction comes the second class, those in which the attacks are acute and very commonly come on at intervals and at intervening times, perhaps for many years the patient may be practically free of any symptoms, although at length permanent damage is done. In certain of these cases the patient may apparently recover perfectly, or almost so, between the attacks, and it may be only after repeated acute attacks that permanent changes appear in the joints. To this class belong 29 cases. There is a third class which shows in some ways features of both the first and second groups; namely, in that they had acute attacks, but with these there was a steady progress, a certain amount of damage being left each time. In this class

there were 12 cases. The remaining 7 cases it was impossible to classify.

CLASS 1. *The Slow Progressive Type.*—It is not necessary to spend time in describing these cases. Beginning either acutely or slowly in one or many joints, the process gradually advances, perhaps sometimes aggravated by accidental conditions, to a greater or less degree of deformity. Many joints are usually involved, the changes being rather in the periarticular structures than in the bony ones, the adjacent muscular structures showing a marked atrophy, deformities resulting, and at the last, a condition of more or less helplessness. A typical case may be briefly quoted:

No. 87.—B. K., white, male, age 40. He was admitted complaining of contraction of the legs and inability to walk. His family history was negative. The history of his present trouble was that twenty-eight years before he began to have pain in the left hip. This soon became stiff and he had difficulty in walking. After six weeks he noticed pain in the other hip, and for a time had much difficulty in walking. He then got about for a time, but always limped. Four or five months later he had a second attack and spent over a year in bed, without any acute symptoms. At the end of this time the knees gradually became involved. After some months he managed to get about, although always more or less stooped, having to walk with the hands on the knees. After a time he had to give this up and take to a wheel chair. The knees became gradually fixed, and for twenty-two years he has not been able to walk. A history in which there was never any acute attack; but only a slow continued progress.

This case, of course, showed involvement only of the lower extremities. A second case may be quoted:

No. 26.—O. F., white, female, aged 40. She was admitted complaining of pain and deformity of the joints. There was a history of arthritis on both sides of the family, and the mother has arthritis deformans. The previous history was negative. Fifteen years before, after a wetting, she complained of some pain in the left arm, which was thought to be rheumatism, was not severe, and did not last long. After this she was free of symptoms until ten years ago, when she began to have pain in the feet, especially after walking. There was no swelling, and the pain was not especially in the joints. At this time she began to notice some changes beginning in the finger joints. These gradually progressed, and for five years she had some general pains and deformity, especially of the feet and hands. During this time her general health varied. It was usually rather bad. She was very nervous. Five years ago her symptoms became very troublesome. The knees were involved, swollen and tender; pain appeared in the neck, and the temporomaxillary joint was involved. After this there was gradual swelling of the ankles, elbows and shoulders. For six months past she had pain and was almost helpless, requiring to have help in putting on her clothes, taking her meals and getting about. There was nothing acute in the symptoms at any time.

Such cases might be quoted at length, but to no purpose. The type is perfectly familiar.

Of the second group, namely, the acute, two illustrative cases may be quoted:

No. 48.—M. W., white, female, age 60. She was admitted complaining of rheumatism. She had a family history of arthritis. Her previous history was negative. At thirty-five she had an attack of acute arthritis, with swelling and pain in many joints. She was laid up in bed for two weeks. Afterward she apparently recovered completely. She had a second attack much like this at forty-five, after which she was practically well. The menopause occurred at fifty-three. Fifteen months ago she began to have pain in the great toe of the left foot. After this the knees, shoulders, elbows, wrists, and hands were all involved. The changes in the joints were more or less permanent, and she now has difficulty in getting about. She herself had noticed that the joints, although swollen and painful, were not red, and that she had no fever.

This is a fairly common history in these cases, recurring acute attacks leaving little damage, but finally permanent changes occurring. A second case in a boy of 13 may be quoted:

No. 53.—E. S., white male, age 13. He complained of swelling and pain in the feet and legs. His family and previous history were negative. His first attack of arthritis was at seven years. This lasted only for a short time, but was accompanied by severe pain. Following this he had eight or ten attacks, all acute, the first one lasting only three days. The one before admission had lasted for two months. Between the earlier attacks he would be perfectly well in every way, but after the later ones it was noticed that a certain amount of stiffness persisted. The last attack was ten months before admission. He had gone to bed well. The next morning on rising he found both ankles so swollen that he could not get his boots on and he was unable to stand. Three months later the wrists became involved suddenly and remained so. On admission the involvement was in many joints.

Many histories of features much like these might be quoted, but it is unnecessary. They all serve to emphasize, however, the comparative frequency of this type of the disease. It is such histories that have suggested previous attacks of acute rheumatism as being common before the development of arthritis deformans. That all these attacks were of the one disease there seems little doubt. In the majority of these cases there is little difficulty in distinguishing them from acute rheumatism. This will be considered later in the section on diagnosis. But a point which seems worthy of emphasis is the frequency of these acute attacks. Nearly one-half of the cases of this group showed these acute manifestations at one time or other. Of the 32 cases in which there was a history of previous acute attacks after which they were practically free of symptoms, 14 had one such previous attack, 2 had two attacks, 4 three attacks, 4 four attacks, 2 five attacks, and 1 ten attacks.

There were 33 cases in which an intercurrent condition was thought to have determined the onset of another attack or further symptoms. In 8 this was an injury of some kind, usually to one joint, and followed at once by acute symptoms in it. Sometimes after this other joints followed. In 6 a wetting or exposure, in 5 an attack of dysentery or diarrhea seemed to have determined a fresh outbreak, in 2 an attack of influenza, in 2 confinement (repeated in successive pregnancies), in 2 a miscarriage, in 2 a marked shock, and in 1 each an attack of gonorrhea, an attack of measles, hot bathing, excessive fatigue, menstruation and a chancroid. Some of these may be only coincidence, but in the majority the association seemed definite.

CONSIDERATION OF THE SYMPTOMS IN DETAIL.

In the discussion of these, especially the features pertaining to the joints, we have to keep in mind the more acute forms and the chronic deformities. With the latter especially we are familiar, and they require but little description. Along with these goes the muscular atrophy which is so common. To consider first the features in the joints:

The Cervical Vertebræ.—These require especial mention quite apart from the condition of spondylitis, because at some time or other in the polyarticular form it is not uncommon to have the neck involved. This was the case in 29 out of the 92 cases. This involvement we have often found to be transitory. There may for a time be pain complained of on moving, motion is much restricted, but on ordinary examination little is to be made out. Sometimes there is some deformity, the

head being held definitely to one side. Judging from our cases, the condition is rarely permanent, many of the patients, especially in the acute attacks, having marked symptoms, which disappear completely as they improve. In very few of our cases has there been any permanent stiffness, apart, of course, from the cases of spondylitis.

The Temporo-Maxillary Joint.—This is involved comparatively frequently—in 22 cases of this series. Involvement is often unilateral and transient, but there may be all variations from this up to complete ankylosis, so that the patient may require to have teeth removed in order to be fed. This, however, has been rare in our cases. In the majority of instances there has been no permanent disability. In a few cases there was almost complete ankylosis and afterward fair recovery. One patient had teeth removed at one time, and later was able to open the mouth to a moderate extent. Involvement of this joint should be considered an important point in the diagnosis of a doubtful polyarthritis.

The Sternal Clavicular Joint.—This was involved in 6 instances. There was usually pain, sometimes slight swelling, and complaint of any motion involving the clavicle. It apparently is not a serious condition, and rarely causes any great discomfort.

The Shoulder Joints.—One or both shoulders were involved in 50 instances; of these, both shoulders in 39 cases; the right only in 8 cases; the left only in 3 cases.

In the acute attacks the patient usually complains of pain and limitation of motion, especially shown in attempts to raise the hand toward the head. It is very common to see them able to raise the hand to the level of the shoulder, but no higher. When the joint condition becomes more chronic there is usually the continuation of pain, some stiffness on handling, often definite limitation of motion, and very commonly crepitus. Fluid in the shoulder joints seems to be comparatively rare. Later there is often a certain amount of muscular atrophy of the shoulder girdle muscles, which, with the disability, often gives a very characteristic picture.

The Elbow Joints.—These were involved in 43 cases: Both elbows in 31 cases; the right only in 4 cases; the left only in 8 cases. In the acute attacks the elbow is usually held in a flexed position, there is often some swelling, and not infrequently a certain amount of involvement of the muscular tissues above and below the joint. This seems often more marked about the elbow than the other joints. In one case the elbow joint was opened during a moderately acute condition. The patient was thought to have gonorrheal arthritis. The muscles were found to be slightly edematous, and there was some fibrin between the muscle fibers. There were some small areas of hemorrhage. The joint contained some viscid yellow fluid. The synovial membrane showed hemorrhage and had a gelatinous appearance. In the later stages the joint may be fixed in flexion or partial flexion, but the thickening about the joints rarely advances to the extent that it often does about the knees.

The Wrist Joints.—These were involved in 46 cases: Both wrists in 36 cases; the right only in 5 cases; the left only in 5 cases. The changes in the wrists are often very characteristic. Only occasionally is there effusion into the joint (noted in one instance in this series), but there is often marked swelling above and below the joint, especially below. As a result of this the usual outlines of the wrist become completely lost. In the later stages we may find extreme polyarticular thickening and a certain loss of motion, although this is usually not so marked as at the elbow. Crepitus is very often obtained.

The Hands.—There was involvement of the metacarpal-phalangeal joints in 41 cases. The changes in these joints are usually very characteristic. In the acute attacks there may be a certain amount of redness, swelling and tenderness. As this subsides, a variable amount of thickening is left around the joints. In the later stages the thickening is permanent, mobility is lessened, there is usually flexion of the joints, and, not uncommonly, some subluxation. It is not uncommon to find some of these joints involved and others free. In six other cases of the series there is only a note that the hands were involved, which probably means these joints.

The Fingers.—These were involved in 52 cases. The thumbs were only involved in 7. The changes in the fingers were often very characteristic. In the acute attacks there may be but little visible change. There is some swelling and limitation of motion, but no great deformity. Subsequently, the thickening about the joints becomes more marked, and the typical "pod-shaped" or fusiform finger is produced. In the later stages we have a great variety of deformities. A common form is a flexion of the first phalanx with hyperextension of the terminal ones, but all the joints may be partially flexed, or only the terminal one be hyperextended. With this one may have also lateral deflection, especially of the terminal joint; and in some cases subluxation may result.

There are several features associated with the hands worthy of note. The patients are rarely able to "make a fist." There is very commonly ulnar deflection of all the fingers, which probably means only the position of greater ease. There are some other features which may possibly not be associated so much with the joints as with other structures. One of these is sudden weakness of the wrist joint, so that the patient drops articles which are being held. This is not an uncommon occurrence, sometimes happening in the earlier stages. Another point is the complaint of pain about the ball of the thumb, or on the ulnar surface of the wrist. This may be found in certain instances quite apart from any active arthritis, and it seems worthy of being noted. In certain cases one notes atrophic changes about the hands. In others the nails are ribbed, or show coarse markings. The skin, in common with that of other parts of the body, may be glossy and shining.

The Hip Joints.—These were involved in 31 cases: Both hips in 25 cases; the right only in 3 cases; the left only in 3 cases. It is not uncommon to have complaint made of pain in the hip joint during an acute attack, but on examination nothing very definite is to be made out except tenderness. In the later stages there may be, as in other joints, more or less permanent deformity. The joint becomes fixed, often with the thigh slightly flexed and more or less abducted. The changes are often not as marked as in the cases with monarticular disease of the hips or spondylitis.

The Knee Joints.—These are by far the most frequently involved in the cases of this series, there being a total of 80 cases. The next most frequent of the single joints is the shoulder. The figures are: Both knees in 65 cases; the right only in 7 cases; the left only in 8 cases. Effusion occurs in the knee joint with considerable frequency, this being quite marked in 14 instances.[6] The knee joints in the acute attacks often show nothing

6. It is, of course, often difficult to be certain of the presence of small amounts of fluid in a joint. Probably it occurs much more frequently than figures generally indicate. In all these cases the presence of fluid was established beyond a doubt.

very characteristic. There is some redness, swelling and tenderness. In later stages the joint commonly becomes somewhat fixed, and there is very often crepitus and marked thickening in the polyarticular structures. Along with this frequently goes marked thickening of the capsule. This can be readily appreciated by running the thumb up and down the inner surface of the joint opposite the interval between the two bones. A thickening of the capsule can thus be very readily perceived, and the thickened folds readily felt. One is often deceived into thinking that there is marked enlargement of the bony parts of the knee joints, whereas this appearance is due principally to the periarticular thickening and muscular atrophy above and below the joint.

The Ankle Joints.—These were involved in 48 cases: Both ankles in 37 cases; the right alone in 5 cases; the left alone in 6 cases. The ankles show often much the same features as the wrists. There is considerable swelling about the joint, and there is stiffness and restriction of motion, with but comparatively little change in the joint itself.

The Feet and Toes.—There was involvement in some of the joints of the feet in 11 cases; of the toes in 10; of the great toe only in 6. The disparity between the involvement of the fingers and of the toes is very striking. Notice should be directed to the cases having involvement only of the great toe among the joints of the feet. In a doubtful case this suggests gout, but the changes in the other joints may be characteristic.

The Symmetry of the Joint Involved.—The majority of writers are very fond of laying emphasis on the symmetry of the disease, but, as will be noted from the figures given before of joint involvement, in a considerable number of instances only one joint was involved. For example, in 11 out of 50 cases of shoulder joint involvement, the disease was unilateral; in 12 out of 43 cases at the elbow joint; in 15 out of 80 in the knee joint, etc. The total number of instances of involvement of the joints of the upper extremity was 238, and of the lower extremity 186. The larger joints of the leg were involved 159 times, and those of the arms 126 times. The preponderance of joint involvement was markedly in the upper extremity in 4 cases, in the lower extremity in 12. This preponderance is, of course, analogous to the greater frequency of the involvement of the large joints of the leg. In only three instances, however, were the joints of one side of the body involved to the exclusion of the other side. One pair of joints only were involved in 3 cases, in 2 the knees, and in 1 the wrists.

How satisfactory the explanation sometimes given may be (namely, that the joints most involved are the ones most in use), there can be little doubt that, as a general rule, the large joints of the legs suffer more than the large joints of the arms. The hands suffer more than the feet. In reference to the association of the polyarticular forms with Heberden's nodes, the figures have already been given. Of the cases with spondylitis there was involvement with the other joints in 8 cases, in 4 of which there were multiple joints; in 1 in the hands; in 1 in the shoulders; in 1 in the knees and hips, and in 1 in the knees, hips and ankles.

Effusion.—The fluid obtained by aspiration is usually somewhat turbid, and contains a certain amount of granular material, with polymorphonuclear leucocytes. We have never found a hemorrhagic exudate.

Muscular Atrophy.—This is present in the majority of cases, but it is well to remember that in certain of the acute forms with a short duration there may be but little atrophy until after successive attacks. This is not invariable, for even after a short duration of symptoms in some cases there may be quite marked atrophy. The significance of this it is not the purpose to discuss here, nor to what extent it suggests a diseased condition in the central nervous system. The atrophy is often characteristic and striking, especially with the appearances in the joints. This is often true of the hands when the wasting of the interossei gives a very typical picture. The rapid onset of this sometimes gives a clew to the diagnosis in a doubtful case.

General Joint Features in the Acute Attacks.—Reference may be made to these, especially as there is so much difficulty in distinguishing the condition from acute rheumatism. There is usually a polyarthritis, but rarely any succession of joints becoming involved and then clear, as in rheumatism. A joint when once attacked is rarely free until the attack is over. There is usually considerable pain, moderate swelling, which may extend above and below the joint (especially in the elbows, wrists and knees), at times redness, but not as marked as in rheumatism, sometimes some heat, and rarely extreme tenderness. If with these features there be involvement of the joints of the hands or fingers, of the cervical vertebræ or temporomaxillary joints, the diagnosis is fairly certain. With these local conditions there is usually not high fever (often surprising when the degree of arthritis is considered), but a rather rapid pulse rate. There is rarely endocardial involvement. To sum up, a polyarthritis which does not shift about, slight fever and a rapid pulse, are the most striking features. As time goes on the fact that the joints change very little, the arthritis persists and the usual rheumatic remedies are of little avail, all help to decide the diagnosis. After the subsidence of the acute features the persistence of thickening about the joints is a suggestive feature.

Temperature.—Of this there were records in 86 cases, the remaining patients not being in the hospital long enough to obtain a complete record. Of these the figures are as follows:

Normal	15
An average of 99	23
An average of 99 to 100.0	21
An average of 99 to 100.5	6
An average of 99 to 101.0	10
An average of 99 to 102.0	1
An average of 99 to 103.0	1
An average of 100	1
An average of 100 to 102.0	1
An average of 101 to 102.0	1
Irregular	2

Of the two irregular cases, in one the temperature varied from 99 F. to 105 F. This was associated with a general pneumococcus infection and death. In the other case the patient had a severe shaking chill, and the temperature arose to 104 F.; the only instance in the series where a severe shaking chill was noted.

These figures of the temperature records are of considerable importance. It will be seen that only fifteen cases, or 18 per cent., had a normal temperature, and that the great majority, fifty-nine, had a temperature averaging between 99 F. and 101 F. This is a point of considerable aid in the diagnosis. The majority have fever, but it is usually not high.

The Circulatory System.—There are notes of the cardiac condition in only 74 cases. Among these the heart was perfectly clear in 55. There was a soft systolic bruit, apparently not organic, in 10. In 2 there was marked irregularity, and in 7 an organic lesion. Among these latter cases there were 3 of aortic insufficiency, 2 of mitral stenosis and insufficiency, and 1 each of mitral insufficiency and mitral stenosis. In some of these the condition was associated with marked

general arterial sclerosis, and probably the cardiac condition was due to this.

Of much greater significance are the records of the pulse rate. Of the 78 cases in which there were long enough records to note, the figures were as follows:

70 to 80	9	100 to 110	19
80 to 90	17	110 to 120	7
90 to 100	24	120 to 130	2

It will be seen that in two-thirds of the cases the pulse rate was above 90. This may be not only with the acute attacks, but also in the conditions characterized by more or less slow advance. We have found it of considerable aid in the diagnosis, especially in association with slight fever.

Urine.—This showed practically nothing abnormal. In 83 cases it was clear in 64, contained a very slight trace of albumin in 9, and albumin and casts in 10. Sugar was found in one instance. Determination of the total excretion of uric acid was made in a number of cases, but always with the finding of the normal amount.

Glandular Enlargement.—Of 33 cases of which we have careful records there was general glandular enlargement in 13, definite enlargement of some of the glands in 4, and no general enlargement in 16. This condition would probably have been found in many other instances had it been carefully looked for. In the majority of cases, at any rate with acute features, the glands in association with the affected joints are enlarged. This is worthy of note as supporting the view that the condition is an infective process of some kind.

Spleen.—Of 39 cases where there are careful notes, the spleen was found enlarged in 4, and in 35 no increase in size could be made out. This is a point of considerable interest, especially in association with the cases of "Still's disease," in which the enlargement of the spleen is such a marked feature.

Subcutaneous Fibroid Nodules.—Of these there are the surprisingly large number of 7 cases, and one additional doubtful case, in which the enlargement seemed to be in association with the tendon. Regarding these nodules, there is no doubt that they are found exactly in proportion as they are looked for. In this clinic careful search is usually made for them, and in all these cases their presence was confirmed by Dr. Osler's note. These figures give a percentage of 7.4, which is very much larger than in the instances among our cases of acute rheumatism (namely, 1.5 per cent.). The opinion is now fairly general that these nodules are not essentially rheumatic, although some writers would have us believe that they were absolutely diagnostic of a rheumatic condition. Of special note is the age of the patients in whom they were found. One was 27, one 33, and all of the others over 50 years of age. In rheumatism these nodules are almost always found in children.

Pigmentation.—Marked pigmentation was noted in 8 cases of the series, but it is doubtful if this represents the total number, had it always been noted. Some writers, especially Spender, have laid emphasis on the occurrence of brown pigmented areas about the forehead, face and forearms, especially as being often diagnostic. If one follows for a time the general incidence of these pigmented areas among all patients they seem to me to be about as frequent in other conditions as in arthritis deformans.

Blood.—The average percentage of hemoglobin in 33 cases was 70.6, and the red cells in 29 cases, 4,468,000. These figures seem rather high when one remembers the very frequent pale, anemic look of these patients; but the pallor is often more striking than the actual anemia.

The average leucocyte count in 33 cases was 7,600. Of these in only 9 was the count over 10,000. In two of these the leucocytosis was probably due to other conditions. In one with an acute pleurisy the leucocytes arose to 18,000; in the other the count of 15,000 was associated with a general pneumococcus infection. These two counts are not included in the average. Of the remaining 7 cases it is interesting to note that in only 2 were the counts taken during acute attacks, rather a surprising result. In 6 cases the leucocytes were 5,000 or lower. Full differential counts were made in 8 cases. These gave an average of: Polymorphonuclears, 76 per cent.; small mononuclears, 14 per cent.; large mononuclears and transitionals, 8 per cent.; eosinophiles, 1.5 per cent.; mastzellen, 0.5 per cent. These are practically normal findings.

Reflexes.—The study of these is of interest, especially as some writers, R. L. Jones,[7] for example, attach some importance to them in the diagnosis. In the cases of this series there are not enough complete reports of the reflexes to draw any conclusions. But the general rule seems fairly well established that the reflexes in association with affected joints are usually increased. This was very evident in some of our cases where the involvement was asymmetrical. On the side affected the reflexes were exaggerated, but normal on the sound side. Whether the explanation lies in the changed local condition or alterations in the cord, is difficult to say. In addition to the deep reflexes, the superficial ones are often much exaggerated, which we have found especially true of the cremasteric reflex. This rather speaks for other than a local cause.

But the findings are not constant. The cases are so variable and the conditions so different that this may later be easily explained. Practically, the reflexes in different cases have been found exaggerated, normal, or decreased, but rarely absent. Ankle clonus was obtained in a few instances, but we have never obtained a definite extensor response to plantar stimulation.

How strongly the conditions of the reflexes speak for spinal cord involvement it hardly seems yet possible definitely to say.

Unusual Features.—These require no special mention. They comprise: Pleurisy, 2; severe diarrhea, 2; chill, 1; jaundice, 1; abdominal pain, 1; mental features, 1; purpura, 1; enlarged thyroid, 1; bronchitis, 1; paralysis, 1. The case with severe abdominal pain is of interest, as there have been cases with like features reported both in acute rheumatism and gout.

PATHOLOGY.

This is again one of the doubtful points in the disease. Until we are certain of the etiology we can determine the morbid anatomy only. The essential element in our knowledge of the pathology is lacking. It is not the purpose here to discuss the various opinions at length. The two principal views are that the disease is (1) due to an infective agent (either a specific organism or a variety of organisms or their toxins) or (2) of neural origin.

For the infective view there are many suggestive points. Here, of course, only the polyarticular form is discussed. The mode of onset, often sudden, with involvement of many joints, the fever, increased pulse rate, are all in favor of an infection. The subsidence of these after a time, often to recur in subsequent attacks—the interval perhaps having been free of symptoms—and usually first or last the appearance of permanent changes

7. The Lancet, Dec. 27, 1902.

about the joints are all important. In some patients there is permanent change dating from the first attack, in others this may only occur after repeated attacks. These seem comparable to the condition often seen in the endocardium of rheumatic patients. A first attack may leave the valves permanently damaged, or only more liable to involvement in subsequent attacks.

Could we determine a definite organism to be associated with the disease, the matter is settled. In this series we have never succeeded in obtaining any results from cultures, in spite of the greatest care in following the methods given (for example, by Bloxall). If we hold the view that many organisms (such as those of influenza, gonorrhea, etc.) are etiologic factors, there are many suggestive facts to support this. There seems no doubt of the association of attacks or exacerbations with various infections such as influenza. This may mean only lowered resistance, for we find this an important factor. Ill health from any cause, anemic or depressing conditions, may all apparently precipitate an exacerbation or another attack. In reference to the association with, for example, previous gonorrhea, it has already been noted that the disease is here very uncommon among the colored race, among whom gonorrhea is almost of general occurrence.

Some features are usually referred to as being much in favor of a neural origin, such as the rapid muscular atrophy, the curious association of alteration in reflexes, such as between the gluteal and plantar, etc. Of the rapid muscular atrophy there can be no doubt. It may occur long before there is any possibility of disuse producing it. After a very prolonged attack of acute rheumatism there may be considerable atrophy, but rarely with the rapidity and certainly not with the certainty of its development in arthritis deformans. The association of the reflexes often follows their segmental distribution, as may also the curious localized distribution of the lesions in the hands. Thus the middle and ring fingers only may be involved, or show special changes. In another case the thumb and first finger may show the same association. These may speak for primary spinal cord involvement, but the explanation suggested that they may be due to changes due to toxic substances seems worthy of note. The changes found in the posterior columns of the cord do not seem necessarily primary. We know that they may be found with any chronic toxic condition, as, for example, diabetes or pernicious anemia. May not the chronic cases of arthritis deformans with suggestive nervous manifestations possibly belong to the same class?

A point worth noting is the occurrence of enlarged lymphatic glands in many of the cases, nearly half of these where we have complete records. In the so-called "Still's disease" they are very marked. This is no more than we might have expected, if this be regarded as a form of arthritis deformans. The glandular system of children reacts more markedly to toxic absorption than that of adults. This glandular involvement seems to support the view that we have a toxic condition, probably due to some infection.

While the whole question must as yet be left open, the evidence seems to point more to the infective theory. Toxemia, secondary to infection, explains some, at any rate, of the nervous symptoms.

Morbid Anatomy.—Here again, in the majority of descriptions, we find only the late changes described. Opportunities for autopsies in the early stages are very rare. To describe the late changes throws no light on the condition. The majority might come from any long-continued degenerative joint condition. It is these that the majority of the writers have given as the pathologic anatomy.

One of the most important of recent observations has been made by Dr. Hale White, who had an opportunity to examine a comparatively acute case postmortem. In a proximal interphalangeal joint with marked changes he found that the most marked alteration was in the synovial membrane. This showed the formation of new fibrous tissue, and evidence of both recent and chronic inflammation. The membrane on the cartilage opposite the thickened fringe showed thickening, and the formation of fibrous tissue. The cartilage beneath this was thinned and eroded, and in places the erosion had gone through the cartilage. In connection with these areas there were foci of inflammation in the bone, but these changes were slight in comparison with those found in the synovial membrane. The synovial fringes in the knee joint showed no bony deformity, only the usual "thinned" condition of the ends of the bones so characteristic of these cases.

The only case of this series coming to autopsy affords but little information, so far as concerns the morbid anatomy of the disease. The patient was admitted with a general pneumococcus infection, with which was a pneumococcus arthritis. He had symptoms of arthritis deformans for over two years. The joint changes had gone on to erosion and eburnation of the bones. Each knee joint contained about 100 c.c. of purulent fluid. The synovial membrane was much thickened and injected, and there was evidently much overgrowth of connective tissue. Sections of these showed the surface covered with an exudate consisting of granular material and of polynuclear leucocytes. Below this was a layer of flat endothelial cells which merged into underlying fibroblasts, under which were many blood vessels and polynuclear leucocytes. Next to this layer was much fibrous tissue. These all seem to speak for inflammatory changes more than degenerative, at any rate in the early stages.

The findings—few though they be—all speak for an inflammatory condition at the onset. Degeneration comes later, but the beginning seems rather due to inflammation beginning in the synovial structures. This suggests infection, rather than neural causation.

Some writers have laid stress on various septic conditions, such as pyorrhea alveolaris. This may have some causal association, but its occurrence is so nearly universal as to throw doubt on its importance.

(To be continued.)

ACUTE OTITIS MEDIA;

THE NECESSITY OF AN EARLY DIAGNOSIS AND TREATMENT.*

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It is necessary that we make an early diagnosis of acute otitis media: 1, Because of pain which usually accompanies all acute attacks; 2, because of deafness which very frequently follows, and 3, because of the frequent danger to life by extension of the inflammation to the brain. If we consider the anatomy of the middle ear, with its proximity to surrounding parts, we readily

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see how important it is to examine our patients as early as possible and relieve the disease before an inroad is made into these dangerous fields.

The middle ear, or tympanum, is situated within the petrous bone, and is an irregular cavity, the carotid canal lying in front and the mastoid cells behind, the meatus auditorius externally and the labyrinth internally. The tympanic cavity consists of two parts, the tympanic cavity proper opposite the tympanic membrane, and the attic, or epitympanic recess, just above the level of the upper part of the membrane. Its boundaries are externally the membrana tympani and meatus, internally the outer surface of the internal ear. It communicates in front with the eustachian tube and canal for the tensor tympani. It communicates behind with the mastoid antrum, and through it with the mastoid cells. It is exceedingly important that we should not overlook this proximity to the opening into the antrum through the posterior wall of the tympanic cavity. This opening is a large irregular aperture which extends backward from the epitympanic recess and the antrum mastoideum. This communicates with the mastoid air cells contained in the interior of the mastoid process, and we should remember that this same mucous membrane, found lining the tympanic cavity, continues into the antrum, thereby giving a direct course through which a very simple inflammation of the middle ear frequently results from an inflammation of the nose or throat due to some pyogenic infection, extending through the eustachian tube into the tympanic cavity, from there into the epitympanic directly into the mastoid cells. Thus are endangered the lives of our patients, a matter on which it is unnecessary to dilate.

Usually the first symptom is pain, commonly termed "earache." This is so common in some families that I am prone to believe that there is often an inherited tendency to this trouble. No doubt many of you have had whole families who have suffered with "earache," especially the smaller children. In nearly every case this is an actual inflammation of the mucous membrane lining the middle ear, extending through the eustachian tube. A child suffering with "earache," so often overlooked, I am afraid, by the "good old family doctor," is always in danger of deafness, and we should not spare any care to relieve this trouble, and warn the family of the danger. It is so often found that the ear thus affected is rarely restored to perfect hearing. This fact often escapes the notice of the family until many years after if only one ear is affected. The pain may be a dull ache or very acute. Often these attacks are at night, becoming so severe that the whole family is aroused, and the laudanum and sweet oil are forthcoming. Frequently in young children the seat of the trouble is never found, and often in a few days the nurse or some member of the family discovers a "running" ear, and perhaps the aurist is called in, but too often at that stage the hearing is partially lost.

The first thing asked of the aurist is to relieve pain. That is of paramount importance to the patient as well as to the family. Any physician can make the correct diagnosis. The use of the head mirror should be common to every medical man, and with that and a light, either from the window or a lamp, the inspection of the drumhead is easily made. In the examination of [illegible] part of the body is it so important for us to practice that delicacy of touch as in the handling of an inflamed ear. It is, indeed, important for the patient's welfare, and also for the physician's, as a rough handling is never repeated in that case, unless by force. If the conditions are such that a thorough examination can not be made give a general anesthetic and make it thorough. If the drumhead is bulging and pain intense, the first thing that should be done is a thorough paracentesis of the tympanum, and the sooner it is done the earlier the inflammation subsides and the less destruction of the parts results. If the drumhead is allowed to rupture spontaneously the disease runs longer, there is greater susceptibility to loss of hearing and more danger to the mastoid, and more liability to other complications which endanger life. It is my experience that if the membrana tympani is punctured early and the secretions allowed to drain, the disease is cut short, and complications are exceedingly rare.

MacLeod Yearsley[1] has this to say regarding the necessity of early recognition of ear trouble in children:

> The frequency of deafness in children due to failure on the part of the attending physician to recognize the existing ear affection in infancy is to be deplored. Often it is not until long afterward that the real trouble is appreciated, and it is then too late to effect a cure by treatment. Pain in the ear is due to inflammation or non-inflammatory affections. The latter, neuralgic, is rare in children. Loss of weight and elevation of temperature should always demand an examination of the ears. Hartmann regards intestinal disturbances in infants suffering from otitis media as being due to the reabsorption of the toxic poisons from the exudate in the tympanic cavity rather than as a result of infection entering the eustachian tube during the act of vomiting. To the general practitioner the value of exclusion of ear disease can not be overestimated.

Dr. Otto J. Stein,[2] writing on middle ear disease and its relation to the cranial cavity, says:

> In the entire human economy there is not a single cavity which is of such vital, relative importance to its neighboring structures as that of the middle ear. It bears such important relationship to all which lies about, hidden away as it is deep down in the firmest and hardest bone of the body, that oftentimes it is the very thread from which suspends the sword of Damocles.
>
> Disease in this region means not only deafness, noises in the head, discharge and dizziness, but, when not properly recognized and taken in hand, results in invasion of the cranial cavity and perhaps death. The very fact that it is a small cavity, not readily visible and tucked away in so strongly fortified position, that when disease runs riot within its walls it lays the entire adjacent territory open to infection and invasion, is sufficient reason why more study, more careful analysis and sober consideration should be given to any sign or symptom pertaining to the ear. Only a few years ago the profession was taught to disregard a chronic discharge from the ear, with the admonition that to check it would be dangerous, therefore, to let it alone to take care of itself. This idea of the subject took its origin, presumably, from the fact that many cases attended by spontaneous cessation of the discharge became worse and died. As a result of this teaching the laity came to regard a running ear as a most natural state of affairs, which to interfere with or check by any means would tend only to complicate matters. Formerly patients had to be satisfied with such advice from their physician, because of an undeveloped state of the profession's knowledge, but the day of such ignorance and omission is past.

In conclusion, we should first consider earache as a warning note of danger to the patient both as respects function of hearing and life.

Second, in making the diagnosis, especially as to the inspection of the trouble, we should avoid opiates as much as possible, for they always mask the symptoms,

1. Pediatrics, June 1, 1901.
2. Annals of Otology, Rhinology and Laryngology, May 31, 1901.

and it would be difficult to thoroughly diagnose the extent of the disease. If the membrana tympani has not already ruptured, after we have made a diagnosis we should perform paracentesis, whether there is much bulging of the membrane or not, for the incision of the drum membrane is important to hasten the evacuation of the pus or serum that is contained behind the tympanum and also to relieve the pain.

DISCUSSION.

DR. H. DUPUY, New Orleans—Free incision of the tympanic membrane is, of course, the only surgical procedure adapted to such cases, but Dr. Boyd did not lay sufficient stress on the anesthetic. Must we use general anesthesia, or have we any satisfactory local anesthetic? In our Eye, Ear and Throat Hospital we use solutions of cocain, anilin oil and absolute alcohol. We use an 18 to 20 per cent. solution of cocain in a solution of equal parts of anilin oil and absolute alcohol. I am sure we have used that solution over 800 times. We fill the canal with this solution and allow it to remain for 10 or 15 minutes, after which time the drum is usually sufficiently anesthetized to permit a free incision. I have been asked by Dr. Cobb what has been our experience with the addition of anilin oil. In all those cases only one did not do well. In that case there was a perforation, and I had the solution instilled into the ear, twenty drops every hour. At that time we knew very little about the effects of the oil. At the end of the third hour I had a most violent case of toxemia. The patient was deeply cyanosed, pulse 165, temperature subnormal, and death seemed imminent. But remember that in this case there was a solution of continuity. The patient was suffering very much, and we injected the solution to secure relief, intending the next day to introduce a more formidable procedure. We have tried menthol and a number of other preparations, and we have decided that if the anilin oil mixture were not satisfactory we would resort to general anesthesia.

DR. PHILIP HAMMOND, Boston—Some four or five years ago, at the Massachusetts Infirmary, we made some experiments to find a satisfactory local anesthetic. Cocain would not penetrate. Cataphoresis, as dentists employ it when working about the teeth, apparently had no effect. Two or three years ago I employed the formula of which Dr. Dupuy speaks. It was used in my clinic one fall and winter session by different observers on a number of cases, although I saw most of the patients myself. I could not see that it had any effect. Some patients will not feel paracentesis anyway. There are cases of great pressure inside the tympanum, with bulging of the drum, in which there is no pain from paracentesis. But in high-strung nervous patients, especially of the better class, this solution had no effect.

DR. EDWARD C. ELLETT, Memphis, Tenn.—Experiences seem to differ. I have been using the menthol-carbolic acid mixture for four or five years, probably about a hundred times, and I have never failed to get a perfectly satisfactory anesthesia of the drum. The solution is simply painted on the drum with a very small wisp of cotton twisted on the end of an applicator, small enough not to obscure vision. The effect may be all due to the carbolic acid for all I know. The discoloration produced indicates how far the anesthesia extends. I have performed simultaneous double paracentesis with this solution without a particle of pain, and I have employed it on children two years old without the manifestation of any more reluctance than they would exhibit to the use of the ear speculum or the applicator. I use equal parts of cocain, menthol and carbolic acid, rubbed up to a liquid. I was glad to hear mention of the pain after perforation of the drum; for, from the text-book and journal articles, I had almost come to think that I must be the only man who had pain continue after the operation.

DR. D. A. KUYK, Richmond, Va.—Although so many cases are reported in which the cocain and anilin oil solution has been used without difficulty, I think we should warn the general practitioner as to its danger. I have had two cases of acute poisoning from this solution; in one the drum was perforated. In one case, a child of 3 years, after the use of four or five instillations of the solution the child's face became blue and pinched, the eyes glassy, the pulse so rapid it could not be counted, and death seemed imminent. Hypodermatic injections of strychnia, the use of hot water bottles and various methods of resuscitation were required to save life. The other case was a man 65 years old. The shape of the canal was such and there was so much swelling that the drum was hardly visible. I wanted to open the external meatus, but he would not consent. The pain was marked. Four instillations of the solution were made by a trained nurse at hour intervals. In about four hours he began to have the classic symptoms. The nurse thought it was only the depression from pain and paid no attention to it. The next morning she telephoned me and asked whether to instill any more of the anilin oil, because the pain was returning. It was several days before the patient was able to walk about the room. As specialists we may use this preparation with comparative impunity, but we should warn practitioners and druggists against giving cocain and anilin oil for the relief of pain. The frequent use of cocain is a sin of commission every day. Druggists tell me that the very beginning of the cocain habit is frequently a spray or ointment prescribed for a patient.

DR. HARMON SMITH, New York—In the hospitals of New York City we have tried the various anesthetics. The one mentioned by Dr. Dupuy is the one we now use more than any other. We have not yet met our Waterloo, but sooner or later we will find a patient with a peculiar idiosyncrasy to cocain. In my opinion, anilin oil anesthesia is the most potent of local remedies in rendering paracentesis painless. Nitrous oxid is more satisfactory, however, than any local anesthetic.

DR. CHARLES H. BAKER, Bay City, Mich.—Anilin oil may produce the same effects that are caused by acetanilid in excessive doses. It is not the cocain so much as it is the anilin oil that causes trouble. I was recently asked by a physician for the composition of the drops that I had used the day before on his daughter. Both drums were intact. Symptoms like acetanilid intoxication were present, and I immediately instructed them to discontinue the instillations. In another case, in which the mixture was used by a physician for earache, it required considerable stimulation to bring the child through. I am in the habit of using this mixture in selected cases only, so that the two cases mentioned occurring in a comparatively small number of cases would seem to show considerable danger in the use of the solution. The instillation of quantities *ad libitum* should be prohibited, and the remedy should be watched.

DR. D. A. KUYK, Richmond, Va.—Perhaps the chemical combination of the cocain and the anilin oil does the damage; either one alone might not have the same poisonous effect. I have used them separately without bad effect.

DR. LEWIS G. WOODSON, Birmingham, Ala.—I think the possibility of cocain intoxication is rather exaggerated. I do not believe that cocain, used alone, has any appreciable effect in producing anesthesia of the drum membrane. In the mixture with carbolic acid, for instance, the carbolic acid is the useful agent. For a number of years I have been using a 20 per cent. solution of carbolic acid in glycerin before incising the drumhead; this renders the operation practically painless. Before operating, this solution is also useful for sterilizing the auditory canal. I doubt very much whether solutions of cocain are ever absorbed by the drum membrane. If they were absorbed, anesthesia would follow in all cases, as we do in other parts of the body. It is only when a perforation exists in the membrana tympani and cocain makes its way into the tympanic cavity that toxic symptoms are developed. I have frequently used from 20 to 30 per cent. solutions in the ear without producing the slightest evidence of toxemia. In adults one can very often, if there is much tension, incise the drumhead freely without any anesthesia. In some cases it is better to use general

anesthesia; for this purpose gas is probably the best and quickest.

DR. J. F. BARNHILL, Indianapolis—If the fluid in the middle ear is catarrhal and the disease limited to the atrium of that cavity, local anesthesia, while not complete in any case, is here indicated and usually sufficient. But in purulent cases in which the disease has attacked the attic, and the inflammation is of a violent nature, the paracentesis, in order to do the good that is expected from it, must be extensive and extend into the mucous membrane of the middle ear, cutting through the reduplications found in the attic and extending into the skin of the external meatus for some distance. This procedure is always and most satisfactorily done under general anesthesia. I have believed that anilin is the most efficacious of the local anesthetic mixtures. I have had two experiences from its use which were entirely unsatisfactory; in each of the cases a diphtheritic exudate formed, covering the skin of the entire external meatus and very greatly prolonging the disease. I have also had one similar experience follow the use of carbolized glycerin for the same purpose.

DR. GEORGE L. RICHARDS, Fall River, Mass.—Paracentesis simply means a puncture, and the average general practitioner whom we are trying to teach will probably get a small spear-shaped knife and puncture the drum membrane slightly and report that he has done a paracentesis. If we would say that we make a free incision of the drum membrane, it would be plainer. I think, as otologists, we should drop the term "paracentesis" altogether.

DR. KATE BALDWIN, Philadelphia—I have found from several years of careful observation that many cases of earache, especially in children during the first and second dentition and even up to the eruption of the wisdom teeth, are to be ascribed almost entirely to the process of dentition. In those cases a thorough free incision down on the tooth will relieve the earache. If this is done before pus is formed it will make unnecessary any puncture of the drum. I have gone over this subject very thoroughly, having a dentist in connection with the clinic, and I think it is a matter worthy of your consideration.

DR. WALTER R. PARKER, Detroit—I have secured my best results from carbolic acid as a local anesthetic. Cocain has not seemed to work so well. Much depends on the method of application. In five or six cases I have used pure carbolic acid, and with absolute alcohol controlled its action completely.

DR. C. M. COBB, Boston—I am afraid of cocain, and I am a good deal more afraid of anilin oil. I prefer to hurt my patients a little rather than to explain to the family how they happened to die. The use of even a weak solution of carbolic acid may produce very decided and extensive tissue necrosis. Dr. Frank Harrington, Boston, reported a necrosis of the entire finger of a workman from the use of a 2 per cent. solution of carbolic acid. When carbolic acid is applied to the drum, I think trouble is more likely to ensue from prolonged suppuration and the patient is likely to be left with a more damaged ear than if cocain or nothing was used. Of course, one can neutralize the carbolic acid with alcohol, but that is not the procedure that has been very generally recommended.

DR. J. F. HILL, Memphis, Tenn.—I have tried a little of every anesthetic, and I have found nothing to equal the preparation Dr. Ellett mentioned. That can be used with perfect satisfaction on children two years old who are crying with earache. I have hundreds of times relieved the condition without free incision by forcing 3 or 4 drops of equal parts of spirits of camphor and chloroform into the middle ear by Politzer's bag. The air in the middle ear becomes stagnant, and it is purified by this solution being thrown through the eustachian tube into the middle ear.

DR. W. SCHEPPEGRELL, New Orleans—If carbolic acid is used only for the incision of the drum, and if its effects are carefully watched, it is useful. But there is danger in its being used for the relief of pain. We can not use carbolic acid in the auditory canal for the relief of pain without danger. If it comes to be used by the laity as they now use cocain, we will surely have many deleterious effects. Its use should be restricted to the incision of the tympanic membrane and its effects at once neutralized.

DR. F. D. BOYD, Fort Worth, Texas—When I selected the title of this paper I knew that all would agree as to the necessity of an early diagnosis and treatment, but I expressed the views in the paper for the benefit of general practitioners and avoided outlining the treatment, etc., because the paper would be prolonged. I agree that "paracentesis" is not a good word, because we make free incisions, and a paracentesis is generally understood as a simple puncture. I have tried cocain in various ways, and have never found it beneficial. I have been forced to resort to a general anesthetic when making a free incision into the drumhead. If we want to relieve a case early and get the best effects, it is better to give some general anesthetic. Often we do not see the patients early; they come to us secondarily, after they have been to the family physician.

SOME RECENT EXPERIENCES WITH CHRONIC SUPPURATIONS OF THE EAR.*

PHILIP HAMMOND, M.D.

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BOSTON.

Discharge from the ear is regarded by most patients as disagreeable, but few recognize the fact that it is a distinct menace to life. After the acute symptoms of abscess formation have subsided, the absence of pain may lead to the neglect of the discharge, or the secretion may be so slight in quantity as to escape observation, and in this way become chronic. With any long-continued suppuration there is very apt to be some invasion of bone tissue and consequent necrosis. In the ear, around which center so many important structures, this is an especially dangerous condition, the more so as the erosion of the bone is insidious, the patient experiencing no discomfort whatever. This carious process usually attacks the ossicles first, and is often limited to them, but later spreads to the main bone. The bone separating the ear cavity from the brain and the large blood vessels varies so in thickness that it is impossible to know when perforation is going to take place. The only safe way is to absolutely stop the discharge.

Of the three cases reported here, the first is a good illustration of the beneficial results of operative interference before the disease has extended beyond the ear. The other cases show equally the folly of allowing a suppurative process to continue within the temporal bone, even although the patient suffers no inconvenience from the disease.

CASE 1.—A young lady with a history of discharge from the right ear three years ago had some treatment at that time and shortly after was assured that the ear was well. There had been no further disturbance in the ear otherwise than some deafness, until a few months before I saw her, when she complained of extreme tenderness about the right ear and side of the head, with some vertigo and nausea. There was with this some purulent discharge. The dizziness became almost constant and was marked when she came to see me. Examination of the right ear showed a large destruction of the drum, with much inspissated pus. With the middle ear probe caries was felt in the region of the incus. There was also a mucous polyp springing from the lower part of the tympanic cavity. The patient was advised to have the ossicles removed, and this was done two days later. Under general anesthesia the remnant of the drum membrane, the malleus, incus and the polyp were removed. Further prob-

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. George L. Richards, O. Joachim and G. V. Woolley.

ing failed to discover caries of the main temporal bone. Subsequent examination of the bones showed entire absence of the long process of the incus from caries.

The ear was cleansed with a middle-ear syringe and a saturated solution of boracic acid in 95 per cent. alcohol injected into the attic. This treatment was carried out for the next month, at first daily, later at longer intervals, until at the end of the fourth week the ear was absolutely dry. This was in January of the present year, and the patient has been seen several times since, but there has never been a trace of moisture or crust formation. The headache and vertigo entirely disappeared, and the hearing was increased from absolute inability to hear voices so that the patient could easily understand a conversational voice at a distance of four feet.

CASE 2.—This represents a class not infrequently seen by aurists, and is by no means an extreme type.

The patient was a man of about 40, who, during an attack of grip, developed a pneumonic condition. There was a sharp chill, with a temperature of 102, and for some days the fever was intermittent. There was severe pain in and around the right ear. As there was a history of former abscess in this ear, the family physician thought it wise to have it examined, and I was called at the end of the first week. Examination of the right ear showed a purulent discharge through a small round hole in the drum, but no swelling of the membrane or canal walls. There was marked tenderness of the mastoid and also of the back of the neck along the spine. There was dulness of the base of both lungs, more extensive on the left. The patient was unconscious, had divergent strabismus, and at times Cheyne-Stokes respiration. A diagnosis of purulent meningitis with septic pneumonia was made, and the family told that the case was hopeless. His general condition was such that he would not have survived an operation. He died within the next twenty-four hours.

CASE 3.—While perhaps not so common a case, this one is still extremely instructive as an example of the condition which may follow a suppurative ear.

The patient was a boy of 9, who had had a chronic abscess in the right ear for six years. He had received some treatment for this, but for several years it had been neglected because it had not given rise to any trouble. Four days before I saw him he had severe pain shooting into the right side of the head, followed by two chills. His temperature rose to 103 at this time, he had nausea and vomiting, and was dizzy on raising his head. The pulse was very rapid and intermittent. This condition continued up to the time I saw him. Examination of the right ear showed great swelling of canal, which was filled with pus and desquamative masses. The drum membrane could not be made out. There was decided tenderness over the mastoid antrum. The heart, lungs and abdomen were negative. The boy was at once sent into the Massachusetts Charitable Eye and Ear Infirmary, and I append a portion of the hospital records:

"Feb. 8, 1903. Operation, ether, Dr. Hammond. Usual incision, cortex showed osteitis in mastoid fossa. Cortex soft, opened with hand gouge. Cells diploetic. Pus welled out. Antrum enlarged, tegmen found carious and granulations on dura, which were removed. Small opening made with chisel above linea temporalis into middle fossa. Dura normal. Posterior wall of auditory canal removed, and mastoid antrum, tympanum and canal thrown into one large cavity. Membranous canal slit posteriorly and stitched back. Whole wound and meatus packed with iodoform gauze."

For nearly a week following the operation the boy was in very fair condition, except that the temperature remained around 103. On February 14, six days after the operation, there was a temporary relapse, the temperature rising to 105, pulse irregular and some cyanosis. On the following day the patient was quite bright and improvement was marked until March 3, seventeen days later, when he suddenly became delirious. This attack also lasted but a few hours.

During the next two weeks a steady gain was made apparently. The appetite became good, he began to sit up, first in bed, then with his clothes on, and played around the ward with as much zest as any of the children.

March 18, six weeks after the first illness, there was a sudden attack of vomiting, accompanied by marked cyanosis. This was at 2 a. m. At 6:30 a. m. Cheyne-Stokes respiration was noticed. There was nausea with considerable retching, lateral nystagmus, tremor of arms and hands and convulsive movements of the facial muscles. The patient was unconscious, and at times delirious. The pupils were widely dilated, but at times reacted to light.

After consultation with Dr. J. Orne Green further operation was decided on as the only hope of saving the boy's life. I quote again from the records:

"March 18, 1903. Operation, ether, Dr. Hammond; old wound opened and granulations curetted out. Dura exposed in last operation dark and covered with granulations. Part of squamous bone removed and temporal lobe probed. A sinus extending from the base of the brain upward into the temporal lobe for two inches was disclosed. There was no pus in this cavity, but the surrounding brain tissue was necrotic. The patient did not recover consciousness after the operation, but died early the following morning. Permission for autopsy could not be obtained."

The obvious lesson to be learned from these cases is the necessity for promptly checking all suppurative processes in the ear. It is not enough that the external discharge shall have ceased, as it is possible for the disease to remain latent for years. There must be absolute cessation of crust formation before we can consider the ear well. A little careful study of cases of long standing will usually show as the cause of the chronicity some disease of the bone. After some practice with the fine silver probes used for this purpose it is astonishing how often we will be enabled to detect the presence of caries of the ossicles and even to tell with considerable precision its exact location.

As to the removal of the bones when diseased, it is merely the application of general surgical procedures to the ear. The one factor that has done as much as anything to bring the operation into disrepute is that in cases of long standing the caries may not be limited to the ossicles, but may have extended to the main temporal bone. Even in this event, although suppuration may not entirely cease, it will, at least, have free drainage, and there will be a better opportunity for the application of remedial measures.

The question of the resultant hearing in the affected ear is one of great importance to the patient, for not infrequently this is the immediate cause which leads him to seek advice. It is interesting in this connection to note that in many cases the incus is so affected by necrosis that it no longer articulates with the stapes, and, therefore, the external portion of the sound conducting mechanism (the drum, malleus and incus) is merely a hindrance to audition. A large percentage of the cases seen by the writer have shown improved hearing as a result of the operation. It is advisable, however, to always impress on the patient the importance of the fact that hearing is of secondary consideration as compared with the danger to which the necrotic lesion within the temporal bone subjects him.

Where the disease has invaded the antrum, and the discharge persists despite all attempts at its relief, the writer thoroughly believes in the value of the radical operation. By throwing open all the accessory cavities every portion of the ear becomes readily accessible, and in this way only can we be sure that there is no fistula leading to the meninges or lateral sinus. It is extremely important that all suspicious openings be explored. I recall an instance a few years ago where on probing the tegmen the instrument suddenly passed upward, open-

ing into a large extradural abscess. The patient made a good recovery, which she probably would not have done had not this careful examination of the bone been made.

The extent of the destruction that this disease can accomplish within the temporal bone with no other symptoms than the presence of the discharge is truly wonderful. In many cases it is not until the patient has a chill, or perhaps severe pain in the ear, accompanied by serious brain symptoms, that he is brought to our attention.

Undoubtedly, most of the cases of extensive caries can be cured by means of the removal of the diseased bone and the invagination of the outer epidermis, provided the patient be brought to us while the disease is still confined to the ear. The great trouble is that these cases are especially apt to be neglected because the process is painless, and has perhaps already existed so many years that the patient has become quite accustomed to it.

It is a duty we owe our patients to inform them of the serious results attendant on neglect of this disease and to urge that advantage be taken of any measures which promise relief.

DISCUSSION.

DR. H. DUPUY, New Orleans—We have been taught that septic infections do not follow simple suppurative conditions in the middle ear unless the sinus be involved. Case 2, in which the middle ear suppuration was followed by pneumonia and in which there was no sinus involvement, shows that pyemia may result from middle ear suppuration without involvement of the sinus. That seems to me an important point. We can have septic infections without sinus involvement.

DR. FRANK W. HILSCHER, Spokane, Wash.—Dr. Hammond spoke of a case not being cured until pus is absent. I suppose he means by that, until he can ascertain no longer the presence of pus.

DR. HAMMOND—The case must be followed until there is absolute dryness and absolutely no pus formation.

DR. HILSCHER—In a case that gave me a great deal of trouble in diagnosis there occurred absolute dryness and no local evidences of pus formation, while there was great destruction going on behind an intact drumhead. The patient, a farmer, was supposed to be suffering from typhoid fever, and was in the hospital a little over a month before I saw him. The physician in attendance asked me to see him because of a discharge from his left ear which had begun the previous day. I found a little pus running from the auditory canal. On examining the temperature chart I found it was not the usual curve typical of typhoid fever. Subnormal temperature, followed by a sudden rise of temperature frequently occurring during the last few days, made me suspicious of sinus involvement. He had no tenderness whatever over the mastoid and had had none at any time. I was at a loss to make out any mastoid trouble. I treated him in the usual way I do suppurative ear cases, and the next day I found the membrana tympani closed up and the ear absolutely dry. I watched him for several days and still there was no pus in the cavity. Subsequently I opened the mastoid and found a large cavity filled with pus, the inner wall perforated and a thrombosis of the lateral sinus, thus giving entrance of pus to the blood and producing pyemia. I mention the case to call attention to the difficulty in diagnosis occasionally met, and the ease with which mastoid disease may be and is frequently overlooked and death ascribed to other causes.

DR. J. F. BARNHILL, Indianapolis—Otologists should never neglect an opportunity to warn the profession and laity of the danger that lurks in a discharging ear. I have been convinced, as you no doubt all have been, that we have not been careful enough to explain to patients the nature of these dangers. We have not been as careful as have the abdominal and general surgeons. A few years ago, for instance, in the discussion of appendicitis, the most aggressive abdominal specialists of this country took pains to warn the public as to the dangers of this disease. The art of oratory was freely indulged in, and one gentleman stated that if a red light were hung on every grave filled by a victim of appendicitis, the world would be lighted by night. There is as great danger from a chronic discharging ear as there is from an appendix in which there is pus formation, but too many of the profession do not as yet recognize this fact. Many an individual with such a discharging ear walks the street or goes about his daily work, who, could he know the danger, would seek his physician immediately. McEwen, in his book, says that such a patient may work at the severest labor up to the very hour of the rupture of an otitic abscess. There is so often but little pain or other disturbance from aural discharge, and the patient has had ear trouble so long without anything alarming befalling him, that he may go on entirely unaware of his impending danger until the end is already reached, and the operator, if given a chance, has not the certainty of results that would have been assured by earlier surgery.

DR. C. M. COBB, Boston—Sometimes these patients die in a few hours, but if we can save even one life we have done a great deal. I saw a patient whose family physician had seen him at 3 o'clock in the afternoon. The patient was provoked that the physician had been called, and he declared that he was not sick. He died at 1 o'clock the next morning. He had an old ear disease, which gave him so little trouble that his wife, who had been married to him five years, did not know he had it. That was an extremely rapid case. I have seen cases with convulsions, and practically all of them have had meningitis. They usually know for a long time that they have trouble with the ear and become accustomed to it, and do not know that it is a menace to life.

DR. GEORGE L. RICHARDS, Fall River, Mass.—I have had a number of experiences which prove the extreme danger of suppurative inflammations of the middle ear. I saw a case in the hospital; the patient went home, but the next day he was brought back hemiplegic and comatose and, although operated on, he did not recover. Often these cases do not come under observation soon enough. We should state to these patients that we can not accept the responsibility of chronic suppurative inflammations of the middle ear unless they are properly treated. There is so little pain in these cases and they often last so long with so little discomfort that the patient disappears from our observation if we do not cure the discharge in a little while. We should state to them that every one of these cases is a slumbering volcano liable to erupt at any time.

DR. PHILIP HAMMOND, Boston—It seemed to me that one of the most interesting features in the last case, in which there was necrosis of the brain tissue, was that, although this boy was under the observation of trained assistants, no definite symptoms were observed. During the last two weeks of his life there were absolutely no definite symptoms of this trouble in the brain. I have seen fatal cases following direct extension of the suppuration through the tegmen. I remember during one week in the hospital two cases died in that way. In one case we had an autopsy, and in the other we know there was a sinus thrombosis. Dr. Hilscher spoke of the operation on the sinus. In chronic suppuration with caries of the temporal bone it is common not to have tenderness of the mastoid.

A Layman's Interest in Anatomy.—It is related that Dr. Nuhn, the professor of anatomy, at Heidelberg, was much surprised one day when a banker, usually unsociable, sat with him in a railway car, and, after a pleasant chat, asked him all sorts of questions, especially about the anatomy of the heart. The next day he called, by permission, and watched the professor dissecting one of these organs. Then he drove home, and a few hours later it became known that he had committed suicide by skilfully plunging a dagger into his heart.—*Medical News.*

THE EFFICACY OF THE TREATMENT OF ACUTE PURULENT OTITIS BY ASEPTIC DRAINAGE.*

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CHICAGO.

The object of this paper is to show the superiority of the treatment of acute purulent otitis by aseptic drainage. The method itself is the familiar one which has gradually gained in popularity. Its principles are paracentesis as soon as the diagnosis is made, and continuous absorption of the discharge by an aseptic gauze drain in the meatus and a large dressing over the auricle. After sterilization of the meatus and auricle by means of carbolic acid solution the sterility of the gauze is further assured by the liberal use of powdered boric acid in the dressing. The external gauze pad is changed as soon as moisture shows, while the tampon in the meatus may be left 24 to 48 hours at a time.

Notwithstanding its simplicity and efficacy, the superiority of this treatment is not universally acknowledged. In illustration I might quote two recent publications by acknowledged authorities. Politzer, in the latest edition of his text-book, does not wish to exclude syringing and other methods completely and speaks of the "dry treatment," but in terms of qualified praise. Bezold[1] prefers syringing, mopping and boric acid insufflation because he has seen unsatisfactory prolongation of the discharge and frequent complications in the form of mastoiditis in consequence of the dry treatment. As I shall attempt to show, such unfavorable opinions must have been based on imperfect technic.

What criterion are we to apply in judging of the efficacy of any treatment of purulent otitis? The duration of the disease and its severity are so variable that statistics as to time of recovery are not fully convincing. Even in cases of similar etiology the time of recovery varies with the individual's power of resistance. A valuable contribution to the point is, however, a table presented at the last meeting of the German Otological Society by Koerner. Among 78 cases the time required for healing was 7 days after paracentesis done on the first day; 9 days after paracentesis done on the second day, and up to 26 days after paracentesis done on the seventh day or later. From personal experience I can say that whenever the "dry" treatment was carried out rigidly the course was shorter by at least one-third than I would have expected formerly in cases of similar severity.

The criterion which I have learned to regard as a proof of efficient treatment is the character of the discharge. In the milder cases, which either perforate spontaneously or are punctured within the first or second day, the discharge is always entirely serous and neither stringy nor purulent. I believe that the same rule applies to all cases of acute otitis, no matter how severe, provided the drumhead is punctured early enough. It is true a perforation or a paracentesis done after the third day usually yields a purulent discharge. But whenever I have had the opportunity to tap the drumhead earlier than 48 hours after the onset I have always obtained a clear fluid. By means of a properly absorbing gauze dressing reaching to the drumhead and changed sufficiently often to remain absorbing and sterile this serous discharge can be kept serous. Its change to a purulent fluid is due to faulty technic. No other treatment with which I am familiar prevents the discharge from becoming purulent except in the mildest cases.

My invariable experience has been that after a climax in the amount of discharge within the first 36 to 48 hours the secretion diminished steadily and progressively to an uneventful recovery, provided due care was taken to keep it serous. The length of time of the discharge in some 40 cases in which the method was carried out successfully varied from 5 to 12 days in the majority, and but exceptionally ran to 15 days. If through any neglect the discharge becomes purulent this progressive improvement is interrupted as indicated by unchanging rate of secretion, and hence longer duration, greater discomfort and the possibility of mastoid complication.

The change from a serous to a purulent or mucopurulent secretion seems to depend mainly on insufficient removal of the fluid. Hence a late spontaneous or operative perforation yields pus at once. If the drainage is not perfect by reason of some neglect the unfavorable change in the character of the fluid will take place speedily. Secondary infection through the meatus with other bacteria may also occur later on and prolong the disease. But during the earlier period this does not seem to be common.

The treatment by aseptic drainage requires, therefore, skillful supervision in order to be successful. But when successfully carried out it has yielded, in my observation, the quickest result and the mildest course. In no case have I ever seen any complication as long as I succeeded in keeping the discharge serous.

In the case of a purulent discharge due to a late perforation or insufficient care in the change of the dressing I have found gauze drainage as satisfactory as any other mode of treatment. But since thick pus is not absorbed as freely as a serous fluid the special superiority of the treatment is not as apparent as in those instances in which its early and proper use prevented purulency of the discharge throughout the entire course.

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. George L. Richards, O. Joachim and G. V. Woollen.

1. Discussion before the German Otological Society, May, 1902, and Arch. of Otology, February, 1903.

THE GREAT VALUE OF DRAINAGE AND ICE IN THE EARLY STAGES OF MASTOIDITIS.*

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SYRACUSE, N. Y.

At the last session of this Section I presented a paper[1] on "Conservatism in Mastoiditis," in which 40 well-developed, advanced and some serious cases recently treated by free tympanic drainage and the use of ice over the mastoid without a failure were reported; the observation was also made that I believed over 50 per cent. of our present external operations could be avoided. The paper was followed by a spirited discussion during which many valuable points were brought out and some criticisms on my position were offered, but experience impels me to remain of the same, or a stronger, opinion. It also became manifest by the discussion that otologists do not yet agree as to the best course to pursue in treating the purely acute forms of this disease.

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. George L. Richards, O. Joachim and G. V. Woollen.

1. THE JOURNAL A. M. A., Jan 31, 1903.

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That conservatism has a place in acute mastoiditis is clear, but I emphatically desire it to be understood this year, as well as last, that I take a conservative attitude only as compared with those who advise the external operation immediately on evidence of mastoid involvement, and then under the following conditions:

1. Conservatism must be confined to cases not complicated by extreme or intercranial symptoms.

2. Free drainage must be secured promptly by a skilled otologist and this followed by conscientious trained nursing.

3. The patient must be kept within easy reach and treatment continued for a few days after active symptoms have subsided.

In those cases where the above conditions can be complied with conservatism becomes a safe, and may form a very proper, subject for consideration, even by this body of men, skilled as they are in more radical surgery of these parts, but cases presenting symptoms of intercranial involvement or extreme conditions, even in acute mastoiditis, require such free drainage as can only be obtained by the external operation.

From a twelve years' experience in mastoid cases, in which hundreds have been under observation, it appears to me that in any line of treatment short of operating externally free internal drainage secured in the early stages is all-important. This should be accomplished by what may be termed a tympano-Wilde's or tympanocanal operation, cutting the drum in the posterior half from the lower border upward, to and through the attic folds, outward along the internal mastoid or superior posterior wall of the external auditory canal. Such an incision is done by a spear-shaped double-edged knife strong enough to lay the tissues open to the bone, thereby lessening periosteal tension in the immediate region of the inflammation, as well as giving free drainage from the tympanum and attic. A momentary anesthesia produced by gas, bromid of ethyl, or chloroform is necessary in aggravated cases, for we must be exact and thorough. Of the three I prefer bromid of ethyl, but chloroform is also very satisfactory.

Before this operation in acute otitis media we have a cavity containing secretions often most virulent, the active agents of which are sure to invade deeper structures; after it we have a simple abscess properly drained. Pent-up secretions will seek the point of least resistance for an outlet; if the drum membrane does not give way the mastoid naturally and easily becomes involved. What could tell us more plainly that our first duty is to secure a proper outlet for this menacing accumulation?

Some drumheads are very tough, and we can not assume that they will yield to pressure before the mastoid cells are put in hazard. Even if they do yield the opening is liable to be insufficient to care for the large amount of pus that is being manufactured, and mastoid symptoms begin to develop, voicing Nature's demand for better drainage. Verily, he who obtains and maintains a free drainage in acute otitis media averts a probable mastoiditis.

An active inflammation of the middle ear is really the first stage of mastoid trouble; prevention in this early stage is worth a pound of cure later; while in some cases a simple puncture of the drum may be all that is necessary to abort more grave conditions, it seems better to be on the safe side and make the incision free and deep. Why should we hesitate? No damage to the hearing comes, for repair sets in only too quickly, often forcing us to enlarge our original opening to keep a proper pus outlet.

When there is an actual involvement of the mastoid cells, the free incision above described, whether an external operation appears probable or not, is imperatively demanded. It is a rational procedure, even if only done for temporary relief in the interval that commonly exists between our first examination of the case and the time set for the external operation, and as in two of the cases cited in my previous paper,[1] will sometimes, even in profound cases, make the more radical work unnecessary.

Antiphlogistic measures are supplementary to drainage, but serve as a great aid in controlling pus formation and inflammatory action. In those cases characterized by much pain and pushing forward the auricle from cellular inflammation in the soft tissues about the canal, hot injections and fomentations afford much relief; in fact, irrigating the ear with a quart of water at 115 degrees F. every 20 minutes is a most excellent treatment in such swollen conditions and serviceable in reducing pain in any stage, but as soon as relief is obtained, the application of constant cold seems to the reader more reliable for routine treatment. The temperature should be recorded every three hours to make plain sudden variations; in no event does it appear good policy to mask symptoms by opiates.

The Sprague ice bag kept properly filled and put on so that it is maintained in immediate contact with the skin over the mastoid is without question a most excellent antiphlogistic.

As I have mentioned in previous articles and in discussions at each opportunity during the past seven years,[2] ice applications, to be effective, should be constant, continuous and prolonged. There should be no marked intervals in the renewing, as often happens in our hospitals when the nurse takes the bag to refill but is interrupted by a call from another patient to which she attends before the ice is reapplied. Such an interruption in treatment may not occur more than twice in twenty-four hours, but unless we have been very specific in our directions this or some other lapse is apt to occur many times, and what is the effect? The parts at once begin to warm up, blood vessels to dilate and pus elements to multiply. If through an improved condition our drainage incision has partially healed, the opening will now prove too small, secretions will again become pent up, pain, tenderness over mastoid, swelling and temperature will increase, and we have to begin over again, for perfect drainage must be maintained. Under careless, haphazard conditions ice may not seem to do much good and I doubt if it does, but the fault does not lie in the principles of treatment; proper nursing would have brought the expected good results.

Ice applications are also serviceable to retard inflammatory activity until the surgeon can arrive and, if continued two or three days after the pain, tenderness and temperature have subsided, practically prevent relapses, though the patient is still human and may take a cold, but will again be amenable to treatment.

Personally, I often keep the parts under this constant low temperature until the discharge ceases, which in several severe cases has been accomplished in six days. In no case except one with tertiary syphilitic trouble

2. See Transactions of the American Laryngological, Rhinological and Otological Society, 1898, p. 72; 1901, p. 208. THE JOURNAL A. M. A., 1899.

has there been a relapse nor in any case a permanent loss of hearing.

In a broad way we can safely assume that if the case is in an acute uncomplicated state when it comes under the care of the specialist he should be able to handle it without being forced to operate externally. Exceptions to this rule are possible and very proper if the symptoms be severe, and the patient will have to be left far removed from operative facilities, or if the required environments and nursing can not be secured.

Prolonged, subacute and chronic cases, or those giving a history of previous otorrhea, are liable to be accompanied by osseous changes, complicating conditions to the extent that unless the otologist is brought into the case early external operating becomes the wisest plan. On the other hand, acute cases without evidence of central involvement—acute cases having very pronounced local symptoms, located within easy reach and under good care—can be given more latitude. Infected lymphatic tissues about the external canal give startling external appearances without a real involvement of the cells. The fact that we have a tender mastoid, projecting auricle, prolapsed superior wall, high temperature and profuse discharge need not tell us to proceed immediately with the external operation; but it does tell us that we must at once improve the drainage and combat the inflammatory action. The argument that the facility with which the external operation, under mallet, chisel and curette, can be done on the usual skull, justifies us in securing drainage that way, loses weight when compared with the short anesthesia, slight shock, danger and expense of the internal operation.

In all those cases that come to the specialist late, with well-advanced to severe states, conservative plans of procedure must be followed by prompt improvement, and no plan should be instituted that is not aggressive and thorough as above outlined. In these acute but advanced cases a marked change for the better must occur at the end of thirty-six hours or external drainage should be secured; it ought to come within twenty-four hours if we have obtained proper drainage by the internal incision and the nursing has been up to requirements. Under no circumstance can an indifferent waiting plan be sanctioned; ultraconservatism is little less than criminal. A better education of the general practitioners on the importance of getting mastoid cases under skilled hands in the early stages is our privileged obligation, and we all can well unite in such a campaign. The possibilities of influence over mortality seems unlimited.

In conclusion, I would say: 1, A conscientious observation of my cases has impressed me with the great advantage we at once obtain over the disease if we secure such free drainage from the middle ear and attic that a tympano-canal incision will give; 2, while many cases will get well simply because we secure proper drainage, the constant and continual application of ice does much to reduce morbid activity and hasten recovery.

I recommend with great confidence the treatment herein outlined, and I believe that when once it is thoroughly tried your commendation and enthusiasm will equal my own.

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DISCUSSION

ON THE PAPERS OF DRS. GRADLE AND SNOW.

DR. J. F. BARNHILL, Indianapolis—I am a believer in the efficacy of aural drainage by dry treatment after the method Dr. Gradle has outlined, and I think that in such treatment we can in many instances cut short acute aural diseases, save hearing power and prevent possibilities of mastoiditis. One thing that ought to receive most careful attention from the otologist, before the paracentesis is made, is to have not only the knife and the hands of the operator aseptic, but also a careful cleansing of the external auditory meatus. The object of the operation is to secure drainage without infection from the outside, and if the external meatus is not thoroughly cleansed, suppuration is almost sure to follow. Hence my practice, before making a paracentesis, is not only to syringe the external meatus, but also to rub hydrogen peroxid into the hair follicles and the adjacent skin, to wash this away, and later mop with alcohol. After the paracentesis has been thoroughly done, I believe it is best not to wash the ear but to pack immediately with sterile strips of gauze. Unless the aurist is able to see the patient frequently, it is best to place a large piece of gauze over the external ear and hold this there by a roller bandage. Such a dressing as this may be left on twenty-four hours, and then it is not always necessary to change the strip which has been placed in the external meatus. The patient or his attendants should never be permitted to change this latter strip unless they have been thoroughly trained as to the aseptic method of doing it. If Dr. Gradle's method is carried out and the patient is seen often enough, it will certainly prevent that continuance of the discharge which too often follows rupture of paracentesis of the drum membrane. I concur in much that Dr. Snow said, but must we not often ask ourselves the question, does conservatism mean waiting in every case, and does it not sometimes mean early surgery? After we have secured the best drainage possible through the external meatus, and the pain still continues in and around the ear, we are not conservative if we wait long before doing a radical procedure. It seems to me probable that few otologists, if any, have sufficient experience in diagnosis to tell how far suppurative disease in the middle ear may have advanced. The depth at which the disease lies prohibits certainty of knowledge in many cases. The amount of discharge, the severity of pain or the absence or presence of fever can not indicate definitely what may be going on in the depths of the ear or the mastoid process. I have often opened mastoids when the patient had previously complained of little pain, there had been no fever, and yet the mastoid cells contained pus. In such cases it can not be conservatism to wait. In at least two cases I have felt that by conservatism I have lost the patient. By an operation done a few hours before death, I have been taught that conservatism is sometimes on the other side. Only a month or two ago I lost a case by meningitis in which if I had operated I would have saved my patient. But the patient's friends' conservatism lost me my patient. In that case there was nothing but a discharge from the ear, no pain and no fever. I feel that one of the greatest things done by a mastoid operation is to save the hearing of the patient. Probably you often have seen a patient with such a flow of pus from the ear that you could with difficulty keep it removed. You know the discharge comes not only from the middle ear, but also from the mastoid antrum and adjoining cells, and that it has found exit through the middle ear because this is the weakest point of its environment. Damage is done to the middle ear by the continual passage of this pus through its cavity, and if no other outlet be provided, and the disease allowed to become chronic, the tissues of the middle ear remain inflamed and thickened, adhesions are apt to occur, and a considerable loss of hearing power will be the inevitable result. In such a case if a mastoid operation be made early and the pus allowed to drain through the mastoid wound, the middle ear becomes dry in a remarkably short time, its structures are saved from deformity or destruction and the hearing power is well preserved.

DR. SAMUEL L. LEDBETTER, Birmingham, Ala.—In these acute conditions of middle-ear disease the results depend largely on the cause of the inflammation. In the spring of 1902, during an epidemic of middle-ear troubles from la grippe, sometimes the discharge would remain serous ten days or two weeks before it would change its character, and some cases would recover without the discharge becoming purulent at all. The

engorgement was in all cases intense. All recovered without mastoid operation. Cases of intense middle-ear congestion will sometimes be relieved by ice applications, thereby preventing mastoid complication. I do not think it is best to wait for mastoid symptoms before using ice. As to preventing sepsis, I have seen cases that were treated most carefully become purulent in a short time. In others, where the drum had ruptured with no preliminary cleansing, recovery would sometimes occur without pus.

DR. EDWARD J. BROWN, Minneapolis—We agree that drainage is the important factor in these cases. In a discussion of this question two or three years ago a physician whose name I do not recall stated that in his practice he had displaced ice and hot fomentations by carbolic glycerin. I have since used the 10 per cent. carbolic glycerin instead of gauze in pus cases with great satisfaction. Cleanse the ear carefully, dry it, fill for five minutes with 1 to 1,000 bichlorid, then with the carbolic glycerin, ordering the latter renewed every hour or two, with use of absorbent cotton. I have used this carbolic glycerin constantly since 1889, when it was recommended by Arthur Hartmann, in his treatise on the ear, as a hot application for the relief of pain of acute otitis media.

DR. PHILIP HAMMOND, Boston—There are various factors that determine the way these cases will turn out. Much depends on the bacterial invasion of the mastoid cells, and of even greater importance is the arrangement of the cells. Experience shows that a diploetic arrangement of the mastoid cells gives rise to more serious troubles than any other kind. There are cases in which there is pus in the mastoid and even cases where the pus escapes down the mastoid muscle, in which the pus is absorbed. I have seen such a case, treated by a physician who might be called "conservative," in which the patient was left alone and the pus was finally absorbed. Another question is as to when the mastoid is infected. I believe it is infected from the very start. I have seen the mastoid opened early and I have never seen a case in which there was not infection as ascertained by culture, when this was made. In one case in which there was mastoid tenderness that had apparently subsided, there was later a chill, and the patient died despite an operation made at that time. Such cases lead us to be more radical rather than so-called "conservative." I wish to commend Dr. Snow's reference to the use of heat and cold in the treatment of the very early stages.

DR. GEORGE L. RICHARDS, Fall River, Mass.—While I recognize the absolute earnestness of Dr. Snow's purpose, I think there should be a word of warning. I know of a case in which there was a free incision of the drum membrane followed by the application of ice. The trouble apparently subsided and the patient went home. The next day there was a return of the trouble and an operation showed the bone broken down. The superficial cells were involved and the antrum had drained out. The ice had masked the infection of the superficial cells. In spite of every effort the patient died. Although I believe in very early incision and the use of ice during the first few hours, this treatment is not sufficient later in the disease. If one can not get good gauze drainage, it is better to syringe every hour or two with 1 to 2,000 or 3,000 or 4,000 bichlorid. I think ice should be abandoned after 48 hours. After one loses a case by over-conservatism he is willing to open the mastoid in every such case. The operation does not endanger life, and it would be safer to operate unnecessarily forty times than to lose a case from so-called "conservatism." Dr. Gradle speaks of putting a bandage over the ear. You can accomplish the same purpose by giving the attendant of the patient a number of pledgets of gauze or cotton and directing that they be placed next to the gauze wick and changed as often as they become moist.

DR. C. M. COBB, Boston—It does very well to be conservative, but I am absolutely certain that I have no means of knowing what is going on in there. If the discharge of pus or other symptoms continue, I feel there is pus under pressure, and possibly necrosis is taking place. The patient either lives or dies under "conservative" treatment without any reference whatever to the treatment after the first few days. Hundreds of those cases get well, regardless of the treatment employed, but I doubt if the ice after the first four or five days has any influence whatever.

DR. FRANK W. HILSCHER, Spokane, Wash.—I have been in the habit, in these cases, of stimulating the secretions and excretions by calomel and some aconite, belladonna, and small doses of opium. I fancy I have had good results from these measures in connection with other things mentioned. I therefore think that constitutional treatment should not be overlooked.

DR. D. A. KUYK, Richmond, Va.—I would like to report a case regarding the "conservatism" that has been mentioned. A little girl who had had scarlet fever about six weeks prior to my visit was suffering with middle-ear trouble. The physician in charge made ice and hot water applications. After over two weeks of this treatment I was called to see the case. I found the ear bulged out by a swelling over the mastoid. Three days later I operated and found five or six tablespoonfuls of pus and the whole mastoid a mass of disintegrated bone. When I left, the next night, the child was doing very well and had no temperature. If our "conservatism" had not been carried so far in that case the child would not have had to undergo so long a stage of convalescence.

DR. JOHN A. DONOVAN, Butte, Mont.—Following the advice Dr. Dench gives regarding the dangers of ice, and from some experience I have had, I consider ice absolutely dangerous, as a rule, after the first twenty-four to forty-eight hours. From the fact that I have recently lost two patients from late operation, I am considerably in favor of early operation in these cases. But some of these patients will not be operated on and many of them recover without any external applications.

DR. MAURY M. STAPLER, Macon, Ga.—I have had two cases with tenderness over the mastoid and involvement of the ear in acute inflammation. The drum membrane was intact. In these cases I used, instead of ice, adrenalin chlorid 1 to 1,000, applied in the canal and over the mastoid. I repeated the application for about two minutes, six times a day. That treatment was continued for two days, and both cases recovered. I can not say as to the relative value of the method.

DR. H. GRADLE, Chicago—It is pleasing to find most of the speakers in agreement with me. Still good authorities, especially European, are not so universally in favor of the "dry" method, and now and then we find articles in American literature referring to other methods of treatment that I must consider inferior. The course of an otitis depends on whether it is a staphylococcus or pneumococcus infection; and, secondly, on whether it is an idiopathic coryza, an influenza coryza or scarlet fever or some other condition which leads to the infection. Nevertheless, if we make it a habit to operate early, inside of twenty-four hours after the trouble begins, we can, with due care, keep a serous discharge serous, as a rule, and the cases will then be more uniform and less severe. Practically, we often see our patients only after perforation has taken place or only after several days of pain when we are compelled to perforate late. After pus has begun to form drainage by gauze alone is not so successful. Often it is better to syringe such cases. The pus is so stringy that drainage by gauze alone is not always sufficient. I can remember a case in German literature in which the patient died of a cerebral complication, in which the discharge was only serous. But personally I have not seen any complications in cases with a serous discharge. Where I can not see the patient often enough I have come to trust more to saturating the gauze in the ear with nitrate of silver solution (2 per cent.) for antisepsis. The external gauze I powder freely with boracic acid. Of course, the external auditory canal is sterilized as much as we are able to with carbolic acid. I believe sublimate solution is untrustworthy. I have the external ear dressed with gauze or cotton, preferably gauze, and it is changed as often as necessary. Dr. Snow's paper very well contends against unnecessary operations, but less conversant practitioners might err in carrying conservatism too far. Many doubtful cases recover without mastoid operation, but the risk

they run is much greater than if we operate early. When there is only tenderness and possibly slight edema it is not necessary to operate in the first twenty-four or thirty-six hours. But if this continues longer than twenty-four or thirty-six hours "conservatism" should be abandoned. The thicker and the more profuse the discharge from the middle ear the more should we favor an early operation on the mastoid. I would consider the operation indicated even when the external symptoms, such as pain, are wanting, in case the discharge from the ear does not diminish gradually in the course of some ten or twelve days under efficient treatment, since such cases are likely to become chronic.

DR. SARGENT F. SNOW, Syracuse, N. Y.—I have tried to make my position plain in this matter. I do not believe in ultra-conservatism. I do not believe in taking chances in subacute or chronic cases. I do not believe in taking chances in acute cases if we have extreme symptoms. But if it seems safe I advocate free drainage and the application of ice until we can see what is going to develop. If we do not get a prompt abatement of symptoms, we should operate promptly. We must not take chances. I kept the ice on from four to six days in cases that at once began to show improvement after the free incisions and I kept the ice on to continue the improvement. If we keep the mastoid tissue at such a low temperature, as we can safely, we certainly prevent morbid activity. The point made by Dr. Cobb about continuing conservatism too long is certainly most excellently taken. We must not continue conservatism too long. If the symptoms commence to rise again, we must at once find the cause. If there is retention of pus, we must relieve it at once. Then as to the safety of continuing the ice six or seven days; it is safe if the patient is making an uninterrupted recovery. In my experience the continuous application of cold does favor a complete resolution of the trouble. I do not advise it for any length of time. I have kept it on five or six days. In those cases where I took it off earlier I found the discharge increased and I had to enlarge the outlet or put on ice again. Then as to the influence of conservative recommendation on the general practitioner, I was afraid of that, myself, last year, and I have watched the [illegible] of last year's paper with a great deal of interest. Since the paper has come out and the reprints have been distributed the number of practitioners who have sent me cases in the early stage has markedly increased. I have tried to emphasize the point that they must get the cases under skilled hands early. The diploetic mastoid is in that state in which it is unsafe to place much reliance on conservative efforts. I am very careful, in all the cases of chronic otorrhea that develop acute symptoms, to operate externally. The internal operation is applicable only when done very early.

DIABETES MELLITUS;

THE LIMITATIONS OF ITS DIETETIC TREATMENT.*

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Over 100 years ago Rollo pointed out the supreme importance of diet in diabetes, and demonstrated that by restriction of the carbohydrate principles of food sugar could be made to disappear from the urine and a general improvement in the patient's nutrition result. In elaboration of this principle, Bouchardat laid down in their minutest details the rules of the dietetic regimen, and ever since, and until a very recent date, discussion has only been on points of minor importance, such as the eligibility of certain foods or beverages for introduction into the various dietaries, strict or moderate. This, our most valuable means of combating the diabetic dystrophy, was conceived in empiricism, and, until comparatively recent times, was practiced empirically, the only guide being the results obtained—the fluctuations of the glycosuria and the state of the patient's general well-being. It may be said that these indications, to a large extent, still govern our procedure, but, thanks to the work of Von Noorden, Rubner, Hutchinson and Atwater, we are now able to base our dietetic prescriptions on a physiologic foundation. The scientific justification of the dietetic treatment of diabetes may be said to be established beyond question, and the details of procedure have been well elaborated; still, to the profession at large, much is wanting in a proper understanding of its principles, and more especially its limitations.

I think it may, without prejudice, be maintained that we have not yet reached the point where we may hope, by means of any at present known remedy or combination of methods, to cure the disease. The diabetic dystrophy is too deep-seated and involves too intimately and seriously the intra-organic nutritive processes for us to hope to correct the perversion by the exhibition of drugs, or to in any way effect more than palliative results.

One result of this symptomatic treatment, to which our disappointment in attempts at specific medication has forced us, is that we have come to attach too much importance to the glycosuria and, forgetful of the fact that this is but one, and by no means the most important, manifestation of the disease, we have bent our energies toward suppressing the excretion of sugar, without full regard for the welfare of the patient in other respects. It is absolutely necessary at the outset to realize that the glycosuria *per se* is capable of little harm; that it is the systemic condition of which glycosuria is but the outward sign that is the threatening element, and that it is to the general nutritive state we must look for the indications which are to guide us in our treatment, and not to the amount of sugar in the urine.

It is not my wish to depreciate the value of controlling the glycosuria, but rather to emphasize the importance of looking farther for results than in the urine.

Removal of the sugar from the urine, unfortunately, does not mean cure of the disease, otherwise we would all have many recoveries to our credit. What is required for cure is a restoration of the assimilative power and improvement in general strength and well-being, and in proportion as these are brought about, we may know that we are succeeding in our treatment.

However authorities may differ regarding the pathogenesis of diabetes, the chemistry of the perversion is coming more clearly into view, and its harmful influence on systemic nutrition is better understood. As with all other nutritive diseases, we have as the essential feature of the diabetic state a hematic dyscrasia, characterized by an excess of glucose and the presence in the blood of various toxic bodies, the outcome of excessive and abnormal proteid metabolism. These factors are potent influences in bringing about deranged tissue states and are probably supplemented in that direction by defective nervous action, always a more or less prominent attendant on diabetes. These influences do not prevail to an equal degree in all cases of the disease, different cases presenting great divergence in intensity and rapidity of progress. The laboratory student would have us regard glycosuria as but syndromic, the mildest differing not in kind but merely in degree from the

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severest form. The clinician, on the contrary, divides his cases into two distinct classes, mild and severe, recognizing the difference between a slight controllable glycosuria with the patient but mildly ill, and the intractable and rapidly progressive disease with its invariably fatal termination. This broad clinical division, although somewhat arbitrary and lacking in specification, has become established by custom and is universally recognized by clinicians. The mild type of diabetes may be defined as an impairment of the power of the organism for assimilating the carbohydrate principles of food, so that hyperglycemia results and sugar appears in the urine. The various symptoms encountered depend for their origin on the presence of sugar in pathologic amounts in the blood. When the glycosuria is controlled by reduction of ingested carbohydrates, more or less prompt subsidence of all symptoms ensues in this form of diabetes.

A striking contrast to this ready control is presented by the severe form of diabetes, which undergoes comparatively little abatement in severity, even after complete withdrawal of carbohydrates from the diet, sugar still appearing in the urine, showing that the sugar-splitting function of the cells is so gravely impaired that the carbohydrate moiety of the proteid molecule can not be utilized in the economy. Progressive emaciation, polyphagia and a gradually deepening toxemia characterize this form of the disease, which presents such varied and marked contrasts to the mild type as to apparently stamp it as an entirely different pathologic process.

In the severe grades of diabetes it is generally accepted that the sugar is derived from the systemic albumin as well as from the carbohydrates of the food, whereas in the light form it comes entirely from the latter source. From an etiologic point of view, the dietetic treatment should, in many respects, be different in the two forms. In the severe all that can be accomplished by the antidiabetic diet is some reduction in the amount of circulating sugar. We can not hope to suppress the glycosuria or control the dystrophy. The utmost we can accomplish by diet is to control somewhat the glycemia and toxemia, and thus, by establishing within the body a closer approach to normal, haply effect some augmentation of strength and preservation of body albumin. In the mild form of the disease, which is an affair of starch malassimilation, to control the glycosuria by adaptation of the diet is only a rational procedure, and can not be otherwise than right. The passage of sugar that can be controlled by diet means the infliction of unnecessary harm on the tissues, and this stands in proportion to the amount of sugar that escapes combustion and is carried off by the urine.

The work of physiologic chemists shows that the diabetic converts just as much potential energy into kinetic force as the healthy individual, there being no difference in this respect between them. The diabetic is handicapped in a nutritive way, however, because of the great loss of sugar, a valuable heat and energy-producing material, by the urine, a loss which must be compensated by increased destruction of body tissues. The destruction of albumin is in this manner greatly increased, and as a result we have much augmented elimination of nitrogen and the progressive loss of weight and strength, which is so noticeable a feature of diabetes. In examples of the severe grade of diabetes there usually exists along with the breaking down of body albumin a collateral formation of organic toxins of acid character, which in their turn complicate the nutritive problem by a disturbing effect on cell protoplasm. It is this tissue waste and its attending toxemia which constitute the real danger in diabetes. Were it not for this, glycosuria would be nothing more than a disagreeable symptom with no immediate dangers, but merely remote and somewhat uncertain secondary effects.

Preservation of body albumin, under all circumstances, must constitute the standard which is to guide us in our regulation of the diet, and the endeavor must be to not only maintain the strength, but, as far as possible, add to the store of bodily energy. When viewed in this light, the body weight becomes the criterion of our success, and not the amount of sugar in the urine.

Some diminution of bodily fat is an inevitable attendant on any restriction of the diet in diabetes, and this may not be wholly undesirable in obese subjects, but it can not be allowed to proceed beyond a certain limit, even in these cases, without detriment to the general health. According to Von Noorden, in order to assure the preservation of body albumin, an amount of food adapted in accordance with general physiologic laws to the needs of the economy is necessary. If the amount sinks below these needs, that is to say, below the output for the time being of the organism, the deficit must be met by a levy, not only on the fats, but also on the albumin of the body.

By reference to Von Noorden's tables we find that a man taking moderate exercise consumes nutritive material to the value of 3.5 calories per kilogram a day. In the case of a man of 70 kilograms (154 lbs.), the average of daily consumption would be represented by about 2,500 calories. The diet must be regulated so as to provide nutritive material to cover this total.

It has been estimated that in health man obtains from 40 to 50 per cent. of the total number of nutritive calories from the carbohydrate principles of food, the remainder being about equally divided betwen the fats and the proteids. In the diabetic state the system is not only deprived to a large extent of the immense nutritive benefit of the carbohydrates, but, as Pavy has pointed out, the effect of this class of food is diametrically opposite to its influence in the healthy state, for instead of contributing to the increase or maintenance of weight, it leads to decrease in weight, through stimulating waste and inducing a wrong state of the system by the abnormal presence of sugar in transit in the blood. Some substitutes must, therefore, be found to take the place of the carbohydrates, and to accomplish this one has to choose either proteids or fats. The net calorie value of various food classes has been estimated by Kleen as being for proteids, 3.2 cal.; fats, 8.4 cal., and carbohydrates, 3.8 cal. in healthy subjects, and usually as much in diabetes, minus, of course, the loss by glycosuria in the latter case.

Our ideas as to the relative value of food constituents as energy producers have undergone considerable change in the light of recent physiologic observations. It was formerly believed that proteids were the principal source of bodily energy, whereas carbohydrates and fats contributed chiefly as sources of heat. It is now known that carbohydrates and fats, as well as proteids, supply energy to the body, and that, moreover, it is a matter of indifference, so far as the ultimate result is concerned, which food is supplied to the organism, provided it be given in amount proportionate to its dynamic equiva-

lent. Heat is a secondary product, the result of cellular activity.

So far as these deductions carry us, the solution of the nutritive problem in diabetes would seem to consist simply of a proportionate increase in the amount of proteids and fats of the food, so as to meet the calorie demands of the organism. The necessity which we have to face, however, is not merely one of substitution for carbohydrates, but a multitude of difficulties complicate the problem. Some means must be devised to terminate the abnormal albumin breaking down, which is so frequently a result of the constitutional vice. Moreover, the digestive welfare of the patient must be duly taken into account, otherwise anorexia, disgust and dyspepsia will vitiate the good effects of our endeavors.

Proteids are the only food elements capable of repairing and building tissue and at the same time producing their quota of energy and heat. It would seem, therefore, that proteids are ideally qualified to act as the mainstay of the diabetic. Certain objections to the excessive use of meats and albuminous foods in the diabetic dietary must be given due consideration. Not only are albuminous foods of themselves an insufficient source of energy for the permanent maintenance of the body, but in the severe form of the disease proteids are known to add to the glycemia by means of the carbohydrate, which is an integral part of the proteid molecule. On this account many cases of this form of the malady are found to do badly on an animal diet. Proteids, moreover, have the effect of stimulating nitrogenous metabolism, and in the excessive destruction of albumin, acetone and other acid toxins are formed which are most prejudicial to the patient's nutrition, and strongly predispose to the development of coma. A less important but still valid objection is that bacterial putrefactive changes of the proteids in the intestines are apt to add materially to the toxemia. Proteids can not be said, therefore, to be conservors of the body tissues in diabetes, but, on the contrary, may, by stimulating nitrogenous waste and increasing the toxemia, prove to have a directly opposite effect. What is needed is true conservation of the tissue albumins, and to accomplish this we must have recourse largely to carbohydrates and fats.

Fat is a compact source of energy, yielding, as we have seen, more than twice as many calories as proteids. It possesses the advantage of not being available as a source of sugar in the economy, as proteids are, and consequently can not add to the hyperglycemia or glycosuria in any stage of diabetes. An additional advantage possessed by fats is that they can, to a considerable extent, fulfill the function of carbohydrates as albumin-sparing bodies, and in this manner they aid materially in the preservation of weight and tissue.

Certain obstacles to the employment of fats in large quantities in the diet exist. They possess a lower percentage of absorption than either of the other two food classes, are more difficult of digestion and less palatable, being apt soon to disgust the taste, so that their availability becomes greatly restricted. For these reasons, notwithstanding their high calorie value, fats can not be ingested in sufficient quantity to cover the expenses of the economy. They do, however, contribute very materially thereto, and richness in fats may be said to be the leading characteristic of the diabetic diet. They are made available to the patient through the employment of various expedients, chiefly by means of the simultaneous use of carbohydrates and alcohol, for it has been found by experience that their palatability and digestibility are greatly enhanced by this association. Fortunately, all diabetics utilize some portion of ingested carbohydrates, and the calories thus gained contribute better than any other to the protection of the systemic proteids. It is, therefore, never necessary to entirely exclude from the diet this class of foods, the extent of their allowance being a matter of the patient's capacity for assimilating them and the form in which they are permitted. The permanent exclusion of carbohydrates from the food can not be effected, because without them, no matter how careful our arrangement of the dietary may be, the supply of available calories is never sufficient for the systemic needs, excessive tissue breaking down resulting to supply the deficiency, and emaciation and organic toxemia follow.

Authorities are in general accord in condemning the attempt to enforce the absolute non-saccharin diet, except perhaps for a brief period to accomplish some special result. This rule holds good in all forms of the disease. In the mild forms of diabetes, some power of starch assimilation is invariably retained, and to withhold carbohydrates entirely is to deprive the patient unnecessarily of a valuable source of energy. In the severe forms of the disease, not only do carbohydrates entirely fail of assimilation, but at the same time the systemic powers are unable to utilize the carbohydrate constituent of the albumin molecule, which acts on the blood and urine identically as does grape sugar derived from other sources. It becomes apparent, therefore, that too close restriction will avail nothing and merely result in jeopardizing the systemic tissues. As a matter of fact, it becomes as necessary, in the severe stage of the disease, to restrict the nitrogenous exchange as to limit the ingestion of carbohydrates, and in the presence of acid toxemia it is advisable to make an attempt to spare the systemic albumin which is being sacrificed, by free introduction of carbohydrates. It is to be remembered in severe diabetes that it is better to temporize with a glycosuria on a mixed diet than to force an autophagy by overstrictness, for we may fail utterly to subsequently cope with the dystrophy, which has thus received a fillip through our zeal. The weight of authority is unequivocally opposed to a too rigid nitrogenous regimen in all forms of diabetes, but especially in the severe form, it having been proved that acetone and acid toxins result from such a measure. Coma has been precipitated by the sudden institution of a strict non-starchy diet.

It becomes apparent from the foregoing considerations that the course to be pursued in the dietetic treatment of diabetes is, in the amenable stages of the disease, to allow the patient as liberal an allowance of carbohydrates as the patient can assimilate, and in the severe stages as much as is found necessary to hold in check the dystrophic advance, bearing in mind the important fact that carbohydrates only act as albumin-sparing bodies when their ingestion is followed by at least partial assimilation. At the same time every artifice must be employed to introduce the largest amount of fat that the patient can take. If this method is pursued it does not become necessary to restrict the nitrogenous elements of food, for by the judicious introduction of carbohydrates and fats little necessity exists for excessive devotion to any one class of foods, and seldom is the patient led into overindulgence in animal foods. The point is frequently made that it is as necessary to limit the quantity as it is the quality of the foods in diabetes. It seems to the writer an unnecessary cruelty to limit the

amount of available foods to these patients, for the bulimia is the outcry of starved tissues, deprived of the food values necessary for their preservation, and to meet this tissue hunger by further starvation seems both cruel and unscientific. A better solution of the difficulty is reached by adjusting the diet, as far as possible, so as to provide sufficient food calories for the systemic needs in easily available forms, such as carbohydrates, fats and alcohol, and when this is successfully accomplished the excessive craving for food disappears.

Some argument exists as to the propriety of suddenly instituting a strict non-starchy diet, even for temporary experimental purposes, to determine the patient's assimilative powers. In decidedly toxic cases, experience has proved that an increase in the acetone and acid toxins is inseparable from the strict diet, and the liability to coma is greatly increased by such a measure. The question of the extent of our restriction seems to be one entirely of the phase of the disease. The general rule may be given that if on a mixed diet the patient's urine does not yield the ferric chlorid reaction one may without danger restrict the carbohydrates. If, on the contrary, the ferric chlorid reaction be present it would be a great mistake to attempt the strict or absolute diet. In such cases there is no physiologic warrant for persisting with diet in the hope of removing the glycosuria. In the most favorable cases of mild diabetes, the absolute diet can not be followed for periods of longer than a few weeks or months. It will generally be found that patients who are fat and not nervous and who have good digestions will bear better the strict diet. Instead of following a blind routine, we must individualize as much as possible and treat each case, so far as indications will lead us, on its own merits. The advantages to be gained by dieting in diabetes do not alone consist in the control of the hyperglycemia and its effects, but experience has proved the important fact that patients who have, for a certain time, been on a diet containing no carbohydrate often acquire a tolerance for these elements and excrete much less sugar after a return to carbohydrates than they did before. The fact has been especially emphasized by Von Noorden, Naunyn, Pavy and Weintraud that the sugar-consuming function of the body is spared by the temporary withdrawal of carbohydrates, and is thus given the opportunity for some recovery and restoration. We avail ourselves in this manner of the important therapeutic principle of rest in subduing functional disturbance. It is impossible, however, to predict an improvement in assimilative capacity after dieting. The reverse may take place. Magnus Levy reports four cases in which prolonged withdrawal of carbohydrates had developed a reduced tolerance for this class of food.

It will be found desirable to place cases on the strict diet for periods of three or four weeks, once or more each year, so as to afford relief to the eliminating organs and rest to the assimilative functions. Beyond this, experience has taught us that even if we exceed somewhat the tolerance for carbohydrates, no great harm is to be feared, since it is not the slight but the excessive glutting of the system with sugar that we must avoid.

103 State Street.

DISCUSSION.

DR. HENRY BEATES, JR., Philadelphia.—If we could only impress on every member of the profession the necessity for demanding elaboration of the so-called fundamental sciences included in the medical curriculum, much would be done to solve, as has been done by the reader of this paper, the complex problems in therapeusis. Experience has taught me that that physiologic teaching prevailing concerning the three types of food is either imperfect or frequently slighted and is commonly absolutely erroneous. Only a small percentage of the profession has a proper conception of these things, and more diabetics have been prematurely brought to their graves because of the pernicious dietetic treatment prescribed than would have been the case had they been left alone. As Dr. Cohen remarked a few moments ago, "What is the dose of anything? Enough." That physician who will cultivate the skill to give enough and only enough of each of the three types of food in treating diabetes mellitus will score that success which it is possible only for scientific medicine to achieve. The paper has, therefore, contributed largely to the knowledge of the scientific treatment of diabetes mellitus, and is an illustration of the need for proper teaching and for the elaboration of the applied phases of the not yet sufficiently appreciated fundamental sciences of chemistry and physiology.

DR. A. C. CROFTAN, Chicago.—There is great confusion to-day in the mind of the average physician in regard to the question of food and food values. Our knowledge of the fate of foods is still in a more or less rudimentary state; we have only gotten to the point where we consider, on the one hand, the ingested food, and on the other the eliminatory products, so far understanding without the intermediary of food dissimilation. Thirty or forty years ago when a case presented sugar in the urine it was said that sugar must be eliminated from the diet. This recommendation was based on the belief that the food-sugar was the only source of the urinary sugar. Nowadays we know that sugar is formed from the catabolism of fats and albumins, and that a certain proportion of carbohydrate is always required to maintain full nutrition. If sugar is completely excluded from the diet the organism is simply forced to manufacture it from the albumins and fats of its proper tissues. Diabetics should therefore have some carbohydrate, but how much is the great question. I think the solution of this exceedingly difficult problem is to undertake to feed the patients quantitatively, i. e., to take each case individually and to show the ingestion and excretion of sugar quantitatively, and to arrange the diet accordingly. The following has been my habit: First I deprive the patient of all carbohydrates for a short time to determine the sugar excretion, and then slowly, by weight, increase the amount of sugar until I get a small increase in the excretion of sugar. I keep the patient at this point, and do not try to get rid of all the sugar. I figure out that the calorie value of the total food, and allow, on the above basis, as liberal diet of carbohydrates as possible. A point which I think is most pernicious in practice to-day is to content ourselves with a purely qualitative regulation of the diet. We must use our tables, heat values; we are as little justified in guessing here as anywhere else. In one thing I do not agree with the essayist: that is that the weight-test should supplant the sugar-test in diabetes; for if we gauge the results of our treatment of these cases from fluctuation in their weight we may be misled. There are cases in which, as we might express it, the sugar is not excreted in the urine as dextrose, but is converted into fat and deposited in the tissues as fat. These patients gain in weight, but they are suffering from diabetes as much as if there were abundant glycosuria with loss of weight, and the diet should be regulated accordingly. The matter can be regulated with mathematical precision and we should not be willing to incur the risk of underfeeding our patient; that is an error that is committed in a great majority of the cases submitting to a strict régime. Many diabetics and nephritics do not feel very sick, nor do they actually begin to fail, until they consult a physician and are promptly placed on a routine diet that slowly but unerringly starves them to death and robs them of that little reserve of resisting power they may possess.

DR. O. T. OSBORNE, New Haven, Conn.—I approve every item in the paper, and I agree with Dr. Beates that a large number of diabetics live along very nicely until they are examined for life insurance and glycosuria is discovered. They then seek

a physician and at once, generally, begin to go downhill. In other words, the diabetic treatment of diabetes mellitus, as such, is vicious. I believe every patient should have his diet modified for diagnostic purposes according to whether he has a dietetic glycosuria or true diabetes mellitus, but the carbohydrates should not be entirely removed from his diet unless examination of the urine shows diacetic acid and ammonia to be absent. Again, a diabetic from whom the carbohydrates have been entirely removed will burn his own tissues, and the forced metabolism through which his organs are compelled to go in order to form the sugar which he will surely excrete from the proteids that he takes is certainly detrimental. If we could say just what diabetes is we might better treat the condition. Many cases we know to be due to disease of the pancreas, and perhaps it is always due to disturbed secretion of this gland. We are now ready to state that there can be an oversecretion and an undersecretion of a ductless gland. I believe, also, there can be disturbed secretion, so that the chemical relationship of the secretion to the normal secretion may vary greatly. I think this is true of exophthalmic goiter, and accounts for the varied results from thyroid treatment. It is interesting to note that patients with exophthalmic goiter often develop diabetes, and sometimes glycosuria is produced by overfeeding of thyroid extract. It has been shown that suprarenal secretion has something to do with sugar production. I am already on record as reporting a case of diabetes in a boy to whom I administered the various internal secretions, and found that thyroid feeding was the worst thing I could give him. Feeding suprarenal tablets reduced the sugar more than any other treatment, and the boy got along well for a year. At the end of that time, for control purposes, I stopped the suprarenal for two weeks, at the end of which time he developed coma and died in three days.

DR. W. J. ROBINSON, New York—The paper shows our present position in the treatment of diabetes. What has been said has been limited to the diet, and it has not been very complimentary to the physician. One patient who came under my observation was placed on the orthodox diet; he was constantly going downhill and becoming exhausted. Finally, feeling sure that he was going to die, he threw off all restrictions, and ate and drank everything, and he practically got well; of course, he believes that all physicians are humbugs. The essay shows what progress we have made in the past century, but, as a matter of fact, even fifty years ago there were physicians who claimed that restriction of the carbohydrates was irrational. Last year Dr. Mossé read a paper on the use of potatoes in diabetes and reported excellent results. Our ideas about diet in diabetes have been radically wrong, and it is our duty to scatter the knowledge as rapidly as possible, so that patients may not be hastened to their death by a too strict and irrational régime.

DR. W. B. HILL, Milwaukee—I get the best results from a general diet, watching with the greatest care the intestinal tract, keeping it free from irritation and in the best possible condition. I know two men who have been eliminating sugar for a great many years; one has so little faith in physicians that he will not diet himself, but eats and drinks freely, and is a big, robust fellow; the other restricts himself only in the matter of drinking whisky, and drinks nothing but Scotch whisky. Both cases are doing well, and in the latter case the sugar is becoming less.

DR. E. T. SHELLEY, Atchison, Kan.—I have had as a patient since about the middle of January an old woman whose family was startled one day by finding her wandering and unable to express her wishes. I was called and, suspecting diabetes, examined her urine and found it highly loaded. I put her on an antidiabetic diet and prescribed tonics. In five weeks the sugar had disappeared, and there have been no signs since that time. About two weeks ago I allowed her to eat anything she pleased, and up to the time I left there was no sugar, and she seemed perfectly well. I feel pretty sure it is not necessary to cling too rigidly to the old methods.

DR. H. A. MOODY, Mobile, Ala.—Sometimes I have been impressed with the fact that cases discovered in the later years of life had been in existence for a long time before the symptoms manifested themselves sufficiently to attract attention. One case was diagnosed on account of the complete anesthesia in the right leg, the patient dislocating the little toe while pulling on a stocking, without feeling any pain. Although persuaded that there was little in the limitation of diet, I followed this plan and made every effort to keep the intestinal tract antiseptic as far as possible. The patient is getting along nicely at present, ten or more years since the time spoken of. I believe that to keep the intestinal tract in as good a condition as possible is very important. I believe many of the unfortunate symptoms which are seen in diabetics are the result of auto-intoxication. By the use of intestinal antiseptics or deodorizers and by limiting to a very moderate extent the starches and sugars of diet I usually have great hope that the patient will live until taken off by some other cause. When the diabetic condition manifests itself before the age of puberty, however, I am hopeless. I have never, in all my experience, seen a satisfactory outcome in such a case.

DR. W. B. HILL, Milwaukee—Some years ago I saw a report from a pathologist who said that in a large number of cases dying from diabetes he had found intestinal ulceration. I would like to ask if investigation has been carried any further on this line, and what has been found.

DR. SOLOMON SOLIS-COHEN, Philadelphia—There is a necessity for dietetic regulation in the treatment of diabetics, but that regulation is to be wisely limited, and the title of the paper is well chosen to express that thought. There is no question of our ignorance of the essential metabolic disturbance underlying diabetes. Attention must also be riveted on the points brought out by Dr. Moody—the difference of diabetes in the aged and the young, in the lean and the obese, glycosuria without diabetes, and also a mild disease simulating diabetes, but without very marked glycosuria. Diet is to be chosen and regulated quantitatively and qualitatively in accordance with at least these four varying conditions. Moreover, we must take into account the glycosuria and the diabetes of the gouty or lithemic. Just before leaving Philadelphia I saw an old gentleman 86 years of age who has been under my care for fifteen years, and who has had polyuria without sugar, and without albumin or casts in notable amount. His sister, about 62 years of age, has been under my care for the same length of time for diabetes mellitus. They come of a long-lived, gouty and diabetic family. This old gentleman tried to cut his toenails; the knife slipped and he wounded his toe. An area of gangrene developed. I examined the patient's urine, which I had been doing once a month for fifteen years, and found sugar, this developing apparently at the same time as the gangrene. The question arises whether or not this was a case of diabetes from the first with the strong family history. Dr. Thos. G. Morton operated on the toe successfully. The patient is now practically well, but still passes sugar. The point as to the diet is this: the patient is an inordinate candy-eater; probably for 85 of his 86 years he has consumed large quantities of this sweet stuff. Dr. Morton, whose experience with diabetic gangrene has been very large, advised against interfering with this diet. On the other hand, I may cite the sister of this man; her glycosuria occasionally disappears and she feels very comfortable. When she goes back to carbohydrate diet the glycosuria reappears, and with it discomfort. Here we have two cases in blood-relatives, one doing thoroughly well on a large consumption of sugar, the other doing badly on the consumption of a small amount of carbohydrates.

DR. GEO. W. WEBSTER, Chicago—I am sure all of us occasionally have had cases following typhoid fever or infectious diseases where the patient will suddenly, without apparent cause, begin to show rapid emaciation, rapid loss of strength and weight, impairment of general health without a rise of temperature, and the general nutrition will suffer. This may occur in patients whose urine has been examined frequently, as in hospitals, and suddenly a little sugar will appear in the urine, and the case goes on rapidly to a fatal termination. My own notion is that they are not diabetic cases, as we use

that term to cover a large series of cases, but that they are cases of acute pancreatitis, and that we delude ourselves by calling them diabetes. Cases dying of "diabetes" do not all have diabetes, but some have pancreatitis. Within the last year or two I saw a young man who, within three months after an attack of typhoid fever and when well enough to travel, when fifteen hundred miles from home, was comparatively suddenly seized with this sudden loss of weight and strength and the appearance of sugar in the urine, and I said it was a case of acute pancreatitis. The patient died, but no autopsy was held.

DR. W. W. TOMPKINS, Charleston, W. Va.—In West Virginia I have frequently asked older physicians about diabetes in the negro. Although possibly one-fourth of our population is of the negro race, and although they have typhoid fever and the other serious diseases from which we suffer, I have never seen a case of diabetes in them, nor could I find another practitioner who had done so. Before the war insanity was unknown among the negroes, but since that time it is not uncommon. Has Dr. Elliott ever personally treated diabetes in the negro?

DR. A. R. ELLIOTT—I have never seen a case of diabetes in the negro. Dr. Tyson a few years ago stated that he had never seen a case in the negro. It is extremely rare in the negro, but common among other colored races, as the East Indians. I agree with Dr. Webster that glycosuria of a pancreatic type may be brought about as a result of typhoid fever. It seems to me reasonable to suppose that inasmuch as the infection may spread from below up the common bile duct to the gall bladder and liver, we may also have an infection spreading over to the pancreas with resulting inflammatory changes in that organ. In regard to the further investigation of the occurrence of ulcers in the bowel in diabetics, I have no information. It is well known that colitis is a very frequent complication in diabetes, produced no doubt by the irritation of hardened fecal matter in the lower bowel. For this reason it has always seemed to me one of the most important therapeutic measures to keep the lower bowel well cleared of fecal matter by enemata to prevent any tendency to coprostasis. I agree with Dr. Beates that many patients are overdieted, and sometimes rue their consultation with physicians. It is not uncommon to hear an old diabetic regret that he ever consulted a physician because, whereas he was in good health before that time, he has suffered ever since in the attempt to combat the disease by dieting. That is unquestionably due to a misconception of the dietetic problem, and the patient is unwarrantably condemned to a strict diet. I believe the attention of the profession is focused entirely too much on the glycosuria, and my general statement that the weighing scales are a better criterion for success in our practice than the presence of glycosuria I believe is true. I am glad to accede the point made by Dr. Croftan that this statement is capable of exception. Since I wrote this paper a case has come to my attention to refute my own statement. In a young girl who has been diabetic for a year and a half, the disease has assumed a vicious toxic form, and diacetic acid and acetone are present in the urine; yet she is gaining in weight. She is very toxic, and her breath smells of acetone.

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EMPYEMA OF THE ANTRUM.*

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In looking over the literature of the above-named subject I have again and again been impressed by the few references to the difference between a cystic empyema, so called, and a true empyema, the one being due to the encroachment of a dentinal or alveolar cyst to the antrum, the other a true infection of the antrum either from dental or nasal origin.

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Stomatology, and approved for publication by the Executive Committee: Drs. M. L. Rhein, M. H. Fletcher and Wm. E. Walker.

In an article on empyema of the antrum in one of our leading dental journals not long ago I noticed a statement as follows:

Within the last few years a comparatively new affection, frequently confounded with antral empyema, has appeared. Dentigerous cysts arise as you know about the tooth roots and slowly dilate the tissue at the root of the tooth.

I quote this principally to show that affections of the teeth and alveolar process in relation to antral troubles do not receive the attention they deserve. If the author of that article had taken the trouble to inform himself he would have found that it was not a new affection, also that a dentigerous cyst is a different condition of affairs from that he states it to be.

These maxillary cysts, when found in the neighborhood of the molars and bicuspids can, and do, in their development, raise or push the floor of the antrum to such an extent that finally the thin intervening lamella of bone is resorbed, leaving only the periosteum and the lining mucous membrane of the antrum as a covering. I have often seen the encroachment such as to include the entire antrum, filling it completely, in its further development raising both outer and inner wall, as well as the roof.

Antral cysts developing within the cavity must of necessity first completely fill it before they can produce any abnormality in the way of bulging of either wall, and can, I think, be recognized as having their origin from within, instead of having developed within the alveolar process. The facial wall, being extremely thin, owing to the resorption of the bone, leaves at times a decided defect in the wall, whereas in the dental or alveolar origin the thinness of the wall is found to be in the alveolar region or process. They are more frequent than has been supposed, not only in connection with antral lesions, but in other regions of the alveolar process; both in the upper and lower maxilla. Many an abscess has been treated with little or no success, tooth finally extracted, socket curetted, packed, etc., thinking it to be either a case of caries or necrosis; whereas, if the proper diagnosis had been made, the tooth could easily have been saved by proper treatment, especially the single-rooted teeth.

The domain of the stomatologist runs very closely into that of the rhinologist. Every now and then in the treatment of an obstinate antral suppuration we find that the trouble is not so much in the antrum as in some of the accessory cavities, draining into the antrum, making a reservoir, so to speak, of it, treating only the effect, not the true cause in such instances. This fact, and also the frequent occurrence of empyema after la grippe, has led some men to almost doubt the dental origin of antral empyema. There is no question at all in my mind that many antral cases are primarily due to infection from some accessory cavity, or other nasal disease. Nevertheless, dental causes are, and will remain, prominent etiologic factors.

The difference of opinion as to the main causation of antral empyema depends greatly on the view-point taken. Reminding one of the oriental story of the three blind men who went one day to inspect an elephant: "He is like a spear," said one who grasped the tusk; "he is like a fan," said another who felt the ear, while the third with his hand on the leg declared he was like a tree. They had all inspected the elephant, but, naturally, formed different ideas of his appearance. So it is with the etiology of antral empyema. Various observers form various views from various experiences,

while if all would inspect every case and judge of its cause and treatment on its own individuality it would be seen that there is ample room for all opinions in considering this interesting subject.

I will not discuss which etiologic factor, nasal or dental, is most frequently found to be the cause of antral suppuration, but it has seemed to me that of late the dental relationship to antral empyema has been somewhat overlooked, not only being frequently the cause, but having a decided influence in keeping a certain amount of irritation, thereby preventing a complete cure. I want, therefore, to bring this phase of the subject to your notice.

That many affections of the nasal cavity and antrum are due to diseased teeth, etc., is not to be doubted. Not only abscessed teeth, but oftentimes carious and even filled teeth, especially the superior incisors, are the cause of nasal disturbances. Ziem of Danzig was one of the first to point out the important relationship existing between diseased teeth and abnormalities of the nasal mucous membrane and antral troubles. He reports a number of cases showing that any carious tooth in the superior maxilla and sometimes even in the inferior maxilla, can by reflex action bring about hypertrophic rhinitis, and sounds a note of warning against the imperfect treatment of carious and diseased teeth, especially the molars and bicuspids. It was due to his investigations that in the year of 1886 the real impetus to the study of antral empyema was given, showing conclusively that they were far more common than heretofore supposed or believed—Ziem himself being a sufferer from an antral empyema due to a diseased tooth. He also was the first to designate the condition, "empyema of the antrum," which, however, is not altogether a correct term, inasmuch as an empyema from a pathologic standpoint is a collection of pus in an enclosed cavity of the body. In the so-called empyema of the antrum we have the collection of pus, but not in a completely enclosed cavity, as we have a continual or an occasional discharge of pus from it. It is useless, however, to find fault with the term until we have a better and more appropriate one to apply to it.

Since Ziem's first important contribution to this subject and the other accessory sinuses of the nose, Zuckerkandl's numerous dissections, as well as P. Heymann, Moritz, Wolf, Harke and others, it has been shown that diseases of the accessory sinuses are anything but infrequent; in fact, they are the rule almost in acute infectious diseases, but, fortunately, will—if the natural openings are normal and not closed by some diseased condition of the nose—end in a spontaneous cure. That some do not end this way is due, according to M. Schmidt and E. Fränkel, "to the varying virulence of the bacteria and the individual disposition of the patient." It is, however, "rather strange," as pointed out by M. Schmidt, "that the various sinuses being so frequently affected in cases of la grippe, should show the presence of the influenza bacillus so seldom—only in 1 case out of 30," according to E. Fränkel's examinations.

Grünwald has well said:

> The great frequency of inflammation of the antrum of Highmore, which follows from the anatomic position of the cavities, rendering them liable to infection by the extension of a process from the inferior turbinate, and favoring the isolation of the morbid process within them by the swelling of the surrounding tissues, and by the high position of the office above the floor of the cavity is enhanced by the proximity of organs like the teeth that are so prone to become diseased. Accordingly, infection of the antrum of Highmore derived from a diseased pulp by way of the lymph channels, and catarrhal condition due to irritation accompanying coronal caries, are common and inversely; catarrh of the antrum may give rise to periodontitis and thus establish a vicious circle, so that the antrum disease persists even after other causes have been removed. As infection creeps along the lymphatics of healthy bone, a focus of infection in the crown of a tooth is by no means to be despised; for even if an empyema of the antrum be due to another cause, yet disease of the crown of a tooth is calculated to maintain such a state of irritation in the mucous membrane as may frustrate all attempts at a cure.

The apparent non-attention on the part of a great many practitioners to the influences that diseased teeth, as well as diseased conditions of the gums and alveolar process have, not only as an etiologic factor, but in maintaining a process once set up in the antrum, is a matter which demands our attention.

In an excellent article on the Heilbarkeit der Kieferhöhlen entzündungen[1] Grünwald gives very interesting and convincing statistics regarding the influence of the teeth in the treatment of antral affections, namely:

> In 31 antra of 20 patients who had sound teeth, or apparently so at least, 39 per cent. were cured, 23 per cent. almost cured, 16 per cent. improved and 23 per cent. unimproved; whereas in 28 antra of 19 patients, in whom the decayed teeth influencing the condition of the antrum were extracted, 65 per cent. were cured, 17 per cent. almost so, 14 per cent. improved and only 5 per cent not cured.

Grünwald explains that "in cases of those patients having apparently sound teeth there must have been some diseased condition present, in the way of a periodontitis, which was, and is, often overlooked in cases, even by dentists," as he on a number of occasions referred the patient to them, and they refused to extract the tooth or teeth on account of the apparent soundness of them. The chances of overlooking any connection or influence that apparently sound teeth have in keeping up the suppurative process are much greater, as it is easy to overlook a diseased condition of the roots of the teeth—whereas, in the cases where teeth were found to be diseased, and either acted as a direct cause of the empyema, or were to a certain extent responsible for the original trouble in the antrum, or in keeping up the suppurative process, the extraction of them alone was a prime factor in the cure of the affection, but does not of itself in the majority of cases suffice to bring about a complete cure, inasmuch as the mere puncturing of the antrum does not show any brilliant results.

That not enough attention has been bestowed on this matter has been shown by the fact that in a number of cases treated according to the accepted methods of to-day suppuration would persist until the teeth involved in keeping up the process had been extracted, showing conclusively that although they might not have been the original cause of the suppuration, nevertheless they were active factors in preventing a complete cure. Grünwald also cites a number of cases to show the important relationship existing between diseased teeth and suppuration of the antrum.

There seems, however, to be a decided difference of opinion between the anatomists and clinicians regarding empyema of dental origin. The former asserting, as no microscopic evidence of any inflammation or change of structure is found on section of the antrum between the roots of the teeth and the cavity, that the teeth de-

1. Archiv f. Laryng. u. Rhinol., 1889, Heft 3.

cayed or diseased play little, if any, active part in its production.

They do admit occasionally to have found sufficient dental cause. Zuckerkandl in 300 cases only could trace one as being due to dental causes. The same with E. Fränkel, while Dmochowsky never found any evidence. Hajek in this connection remarks:

This marked difference of opinion of anatomic and clinical evidence is due to the fact that in the course of time all evidence which would point to a disease of the alveolar process or teeth is, or has been, entirely lost, as it is quite possible for the germs to have penetrated through the alveoli of the teeth and the intervening bony plate, as is the case in an affection of the meninges in frontal sinus and sphenoidal empyema without leaving or producing any macroscopic changes in the bone.

Kyle states: "Too much importance can not be attached to the teeth as a causal factor in antral lesions." A majority of cases he believes are due to diseases of the teeth and gives the percentage as high as 70, also states that it may be a postoperative complication of nasal and dental surgery. One case observed by him was due to the use of arsenic applied for the destruction of a pulp in a decayed tooth. The application was made twice in three days and not seen for several days afterward, when the antrum was involved, and extensive tissue necrosis had occurred with infection (evidently due to a very careless application of the arsenic). In another case extensive necrosis and suppuration had followed the injection of chlorid of zinc into a tooth cavity which connected with the antrum.

The relationship between diseased conditions of teeth and the upper jaw, gums, alveolar process and antral troubles as well as some lesions of the nose, is an intimate one, and should be taken into consideration more frequently than it is. As Kyle has well said:

A thin alveolar process of upper jaw from lesions of the teeth may cause by extension of inflammation, by continuity of structure, lesions of the floor of the nose or of the antrum; on the other hand, deflections of the septum or spurs situated close to the floor of the nose, by the inflammatory action set up in the surrounding structure, may bring about inflammation and diseased conditions of the teeth in the direct line of obstruction. The stomatologist should, therefore, not only have a thorough knowledge of the nasal cavities and accessory sinuses, but also of general medicine; and, indeed, the general practitioner or specialist should have a more thorough knowledge of stomatology.

DISCUSSION.

DR. THOMAS L. GILMER, Chicago—Dr. Heise has done well in differentiating between a pus sac at the end of a root of a tooth and the so-called empyema of the maxillary sinus. I do not know whether I can agree with him in the nomenclature. We are often defective in diagnosis of the various diseases to which the antrum is subject. For instance, take the condition spoken of in the paper, denominated cystic empyema, and the condition called true empyema. It may be very difficult to diagnose between these two conditions, although there is a vast difference. This is especially true if the ostium maxillary be closed, then practically both are encysted. In neither case will pus be found in the nose. In the encysted condition pus will not escape into the nose because it is enveloped in a cyst wall; in the other it does not escape, because the normal outlet from the sinus is closed. Sometimes a tooth is found with a septic root closely approximating the floor of the antrum, and as a result a pus sac may form on the end of the root, and by enlargement cause pressure sufficient to absorb the thin layer of bone overlying, and the sac continuing to grow, may in some instances completely fill the sinus. The patient may have all of the symptoms of empyema, transillumination gives a shadow, there is thinning of the nasal and buccal walls and protrusion of the eye from pressure below, but there is no appearance of pus in the nose. If the fact can be established that there is no stenosis of the ostium, then the indications are that it is either a cyst or a new growth. My clinical experience leads me to the conclusion that the two principal causes of empyema of the maxillary sinus are extension through continuity of tissue of an inflammation from the nose, and from septic roots of teeth, the former being by far the more common cause. Since the prevalence of influenza in this country, disease of the maxillary sinus has become much more common, indicating that the nose is a fruitful source of the disease. While it is true that septic roots of teeth are occasionally a primary cause of empyema of the maxillary sinus, still I am of the opinion that they are more frequently a secondary rather than a primary cause. For instance, as a result of a catarrhal condition of the lining membrane of the antrum there may be an inflammation of sufficient consequence to cause the death of the pulp in the root of a tooth. In some instances on the floor of the antrum immediately over the buccal roots of the first and second molars, and over the end of the root of the second bicuspid there are slight elevations of very thin bone, corresponding to the roots of these tusks. The mucous membrane over this thin area of bone becomes inflamed, the inflammation extends from the lining of the sinus to the pulp of the tooth, causing its death. After the subsidence of the catarrhal condition there is left at the end of the root a source of infection which will probably continue the disease of the antrum as an empyema. Under such circumstances the root was a secondary rather than a primary cause. My experience teaches me that it is useless to attempt to cure a case of empyema, caused by a pulpless tooth, if the apex of the root projects into the floor of the sinus, until the tooth is removed. If only drainage is needed for a cure then I would open through from the middle meatus of the nose. If the sinus contained granulation tissue, polypi or any condition demanding curettement, I should open from the buccal wall of the cavity, making the opening sufficiently large to admit the little finger. Digital examination affords a much more satisfactory means of exploring the cavity than does an instrument. I prefer to make such an opening rather than through a tooth socket, 1, because it is impossible to reach every part of the sinus for curettement through a tooth socket; 2, because, if the opening is made through the buccal wall the cheek falls over the opening and in a large measure prevents food from getting into the cavity. An opening here also permits the introduction into the cavity of a small electric lamp for examination during treatment. I am of the opinion that arsenic should almost never be used for the destruction of pulps of teeth. The application of cocain makes the immediate removal of pulps painless and practicable, therefore its use is preferable. In some instances there are accessory or additional openings in the sides of the roots of teeth larger than the apical foramen, through which arsenic may pass and do much harm. I can not conceive why chlorid of zinc or carbolic acid should be used in such cases.

DR. M. H. FLETCHER, Cincinnati—In 1893 Dr. Talbot and I went through the Army Medical Museum to study the anatomy of the antrum. The tubercle of bone over the roots of the teeth, as pictured on the board by Dr. Gilmer and as shown and described by Gray, Quain, Zuckerkandl and other anatomists, was found[1] in only 12 antra out of 1,000. On the other hand, in a large per cent. of cases there was no bony covering over the apices of the teeth, the apex of the tooth coming directly against the soft tissues of the floor of the antrum. We all know that on the buccal surfaces many of the apices of roots are bare of bone, being simply covered by mucous membrane and, as I have stated, many apices are also bare in the antrum. An abscessed tooth with the conditions of anatomy described would undoubtedly discharge in the antrum the pus going in the direction of least resistance. I have seen several cases of such perforation with a dental abscess discharging into the

1. "Some Suggestions as to the Relation of the Teeth to Empyema of the Maxillary Sinus," M. H. Fletcher, THE JOURNAL A. M. A., Dec. 30, 1893.

antrum. In these instances healing took place, under treatment, as readily as if the opening had been through the alveolar process. It is my experience that pulpless teeth producing antral trouble yield to treatment as readily as though they discharged into the mouth. On the other hand, recent experience has caused me to believe that disease of the alveolar process from calcareous deposits is more largely to blame for antral trouble than are pulp lesions. It never has been my experience in examination either of skulls or of patients to see a bicuspid that came very near the floor of the antrum. I have seen these openings referred to by Dr. Gilmer. I fail to recognize any condition about the pulp of a vital tooth which would cause antral disturbance. Arsenic is a favorite remedy of mine. I have used it almost ever since I have been practicing, and it is my habit, if I feel that I have failed in perfectly opening a root canal, to insert some arsenic as far into the canal as possible and leave it there, expecting it to continue to produce asepsis and prevent future trouble. I have done this a great many times and have yet to see antral trouble produced. I do not, however, use arsenic to any degree in destroying pulps.

DR. H. E. BELDEN, New Orleans—In view of the fact that you use arsenic at all, what is your objection to using it in destroying pulps?

DR. FLETCHER—If enough is used to destroy the pulp in a reasonable time it is sufficient to cause trouble afterward. As to the use of zinc and other medicaments which destroy bone, I have seen carbolic acid destroy a large area of the alveolar process, but I never have seen arsenic do that. Arsenic, however, if applied to live tissues will destroy a small zone. In my experience it never has produced necrosis, as that term is accepted in pathology. It may produce destruction of tissue, but the condition may be compared to traumatic injury. The tissues do not continue to die progressively as in ordinary necrosis. It has also been my experience that the tissues will remain sore for months if the application is short of destruction of tissue. There is, however, in these cases no septic condition, no necrosis, no pus. The arsenic stops this process.

DR. GILMER—Have you not seen the destruction of bone between the teeth from the use of arsenic?

DR. FLETCHER—I never have.

MR. CONSTANT—I have on three occasions.

DR. GILMER—I have seen it many times.

DR. FLETCHER—The essayist has distinguished between a cystic condition and that of empyema. I have to stretch my imagination considerably to think of a tooth producing the cysts as he has described.

MR. T. E. CONSTANT, Scarborough, England—In my experience it has been very exceptional to find a case in which disease of the antrum could be definitely traced to the tooth. In regard to determining cause and effect, I am sure that to consider many cases of so-called empyema as due to abscess connected with the tooth is putting the cart before the horse. I can recall two cases in which empyema of the antrum was supposed to be due to trouble in the first molar. When the first molar was removed it was found possible to evacuate the pus and that was taken as proof that the tooth caused the trouble. I could not convince myself that the tooth was the cause of the trouble. I think the fact that the apices actually went into the antrum made it easy to get the discharge in that way. I agree with Dr. Fletcher that it is far more common to find the apices of teeth bare within the antrum than to find them covered. A great number which I have examined in England show that.

DR. M. L. RHEIN, New York City—I feel convinced from a careful study of this subject that the cases in which the teeth are the primary etiologic factors are very rare. The tooth generally becomes involved through pathologic conditions arising between the end of the root and the antrum. I think it is wise to emphasize this point.

DR. FLETCHER—Dr. Talbot and I found that the molar teeth produced this trouble in about 5 per cent. of cases.

DR. A. E. BALDWIN, Chicago—I firmly believe that arsenic can seldom if ever affect the tissues beyond the pulp of the tooth. Dr. Gilmer has referred to the septum being lost by the careless application of the arsenic by the particles getting down between the teeth.

DR. GILMER—I spoke of the particles on the sides of the root which I have found and have been able to pick off.

DR. BALDWIN—Years ago I suspected that arsenic or arsenious acid might act beyond the pulp and I made several examinations in this way: In a central incision I would make application to the pulp of the tooth, and after a sufficient time remove the pulp. I then took several sections of the pulp, but could find no evidence of the arsenic in the several parts beyond the point of contact. I do not think, therefore, that the pulp could convey the arsenic to the adjacent tissues. I think a great deal of the injury is done by the careless application of the arsenic and the ease with which it gets outside of the tooth, causing the destruction of bone and soft structures.

DR. G. L. CURTIS, New York City—I think there are very few diseases of the antrum of a primary nature, and that a large proportion of the diseases of the antrum are caused by affections of the teeth. Tuberculous conditions are sometimes responsible for the absence of success in treating these cases. The cystic condition usually found in the antrum is, I believe, largely due to alveolar abscess, or to septic conditions of the pulp or of the canal of the tooth. I have seen some cystic tumors where there was extended absorption of the bone, and where the periosteum of the antrum was so crowded toward the opening at the nares that there was practically no antrum left. The reproduction of the bone in such cases is a most difficult task.

THE *X*-RAY AS A THERAPEUTIC AGENT:

WITH ESPECIAL REFERENCE TO CARCINOMA.*

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In attempting to arrive at a correct estimate of the *x*-ray as a therapeutic agent we are confronted at the outset with a number of difficulties: (1) By the fact that this force has been known but a short time and that little is known of its exact nature, so limited is our knowledge that we can not even measure with any degree of accuracy the amount which we are employing in a given case. (2) The agent has been employed but a very short time as a therapeutic agent, and sufficient time has not elapsed to enable us to determine the permanency of the results obtained. (3) Although an enormous amount of work has been devoted to the subject and an enormous number and variety of cases have been treated during the last three years, still for the most part this has been done in a haphazard way by all sorts and conditions of medical men, on all sorts and conditions of patients, and little reliance can be placed on many of the reports made.

I think that it would be safe to say that up to the present most of the *x*-ray work has been done by two classes of men—enthusiasts whose statements and reports were made unreliable by their enthusiasm, and, second, by physicians who simply saw in an *x*-ray apparatus a means of increasing their professional incomes, and did not hesitate to cry loudly the value of their wares.

We do not lack evidence on the subject of the therapeutic value of the *x*-ray. We have before us an enormous mass of evidence. The difficulty is to separate the truth from the error. We have before us, however, a certain amount of scientific well-observed work, done by well-qualified men, whose reports and opinions command general acceptance, from which we can determine

* Read before the New York State Medical Society, 1903.

approximately at least the present status of the *x*-ray as a therapeutic agent—its value, and its dangers and limitations.

Very shortly after the discovery of the *x*-ray I became interested in the subject as a means of diagnosis, and very early became familiar with the peculiar power which it possesses of destroying living tissues, especially epithelium, as shown by some extensive *x*-ray burns. As early as 1898 I employed it in a case of lupus, which has recurred after extirpation and skin grafting, but without benefit. We obtained a marked *x*-ray reaction in this case after a few exposures, but we could not see any evidence of improvement, and we discontinued treatment.

When my attention was again called to the subject by favorable reports in cases of lupus and epithelioma I was exceedingly skeptical—I might say brutally skeptical. I had shortly, however, an opportunity of seeing cases of lupus and epithelioma and recurring carcinoma of the breast, which had disappeared under *x*-ray exposures, and I began experimenting with similar cases in my own service. I was greatly impressed by the cases of recurring breast carcinoma, where nodules of considerable size, and demonstrated by the microscope to be carcinoma, disappeared under the treatment.

Everyone who has watched such cases must have been convinced that in the *x*-ray we possess an agent of great power and great possibilities in the treatment of malignant disease.

In 1902, at the Saratoga meeting of the American Surgical Association, I made a report of my early work, and again, at the last meeting of the American Surgical Association at Washington, I presented a paper in which, from the evidence at hand, I attempted to estimate the value and limitations of the *x*-ray as a therapeutic agent in carcinoma. I shall quote rather freely from this report. I desire to say that in the last year and a half nothing strikingly new has been added to our knowledge in this department. The experience and evidences obtained during this period have been rather of a kind which demonstrated to us the marked limitations of the agent, and demonstrated the dangers associated with its employment.

I shall confine my statements to classes of cases which I have had the opportunity of personally observing. I shall not mention the many skin lesions in which the *x*-ray has been employed, with reported favorable results, as I have little personal knowledge of this side of the subject with the exception of blastomycetic dermatitis, and I shall refer to this because it has some bearing on a point which I shall later bring out.

Several years ago when I first suggested the internal use of iodid of potassium in blastomycosis in a case reported by Hyde, Hektoen and myself, it was found in this and later cases that the iodid profoundly influenced the disease. It was noted, however, that some resisted the treatment, and that although a decided improvement was obtained, the lesion often did not clear up entirely, and recurred after cessation of the treatment. It has since then been found by Hyde, Montgomery, Pusey and others, that the combined action of the iodid internally and the *x*-ray is successful in curing these obstinate cases where neither alone would suffice. I regard this as a very instructive and suggestive point, which, as I have stated, I shall refer to later.

In lupus the evidence is somewhat conflicting. The *x*-ray does cure lupus, but the experience of the majority of workers in this field seems to speak in favor of the Finsen treatment as the treatment of choice. In our hospital we are now using a modified Finsen lamp instead of the *x*-ray in our lupus cases.

In Hodgkin's disease uniformly favorable results have been obtained as far as decrease or disappearance of the enlarged glands is concerned. In some cases this has been accompanied by profound toxemia, resulting apparently from poison introduced into the circulation from the rapidly breaking down glands. Sometimes this has been fatal. In some of the cases with the disappearance of the glands there was no general improvement, the patients growing weaker and the cases terminating fatally after a considerable period. In others the glands, after disappearing, have later recurred. In some cases, however, the glands have disappeared, the patient's condition has improved to a point where they were apparently cured, and this has occurred in a sufficient number of cases to warrant the careful use of the *x*-ray as an important, if not the most important, factor in the treatment of this disease.

In leukemia, in both the spleno-medullary and lymphatic types, marked diminution of the spleen and involved glands has been observed after the use of the *x*-ray, with improvement in the blood condition. The evidence here, however, is as yet not sufficient to warrant the drawing of any conclusion.

In tuberculosis, outside of lupus, as tuberculosis of lymphatic glands, bones and joints, peritoneum and intestines, the reports are very conflicting. In a personal communication one of the men who has had a wide experience in *x*-ray therapy and who has followed his work most thoroughly and scientifically, informs me that he believes he is curing 90 per cent. of tuberculous lymph glands. Our own limited personal observation, on the other hand, has given us small encouragement.

We have not employed the agent in tuberculosis of bones or joints. In tuberculosis within the abdomen, of peritoneum and intestines, we have had the opportunity of noting some interesting results. One case of hyperplastic tuberculosis of the descending colon, with circumscribed abscess from perforation, was operated on and the abscess drained. A fecal fistula remained. This was closed by a second operation, and the patient placed under the *x*-ray every other day for a period of five or six months. During this period moderate doses—75 grains a day—of potassium iodid were employed. Under treatment the patient has gained 40 pounds in weight, has regained his strength, and returned to his work (manual labor), and the fist-sized mass in and about the colon has almost entirely disappeared. We can not, of course, establish a definite relationship between the *x*-ray treatment and the improvement. I simply report the facts for what they are worth.

Several cases in the service of Dr. Frank Billings of peritoneal tuberculosis with tuberculous masses and with large amounts of fluid in the peritoneal cavity, which I had the opportunity of observing, have, while under rest and the *x*-ray, improved greatly, the masses and fluid both disappearing.

In regard to this whole subject of tuberculosis, outside of lupus, I should say that we must regard the question as still open, and as a promising field for future experimentation. Sarcomas have been made to melt down and disappear under the *x*-ray. The evidence on this point I think can not be doubted. However, as a treatment for sarcoma the *x*-ray has been most unsatisfactory in our hands. Sarcomas from the position from which they spring, i. e., mesoblastic layer, are

essentially deep-seated. If we could spread out the cells of a sarcoma as a thin layer on the surface of the skin I have no doubt that the *x*-ray would destroy them as it destroys the epithelial cells in epithelioma, or if we should leave a great open wound after the removal of a sarcoma so that we could directly, without much intervening tissue, apply the *x*-ray to the cells which might remain after operation we might obtain favorable results. As an example of this point, I want to refer to a glioma of the orbit which recurred after operation in which the *x*-ray could be brought in immediate contact without intervening tissue and where disappearance of the growth and an apparent cure was obtained.

I think the same conclusions can for the most part be applied to sarcoma as apply to deep-seated carcinoma, which we shall later discuss.

In regard to the effect of the *x*-ray on carcinoma, we may speak with more confidence and say that the facts which are to-day fairly well established are the following:

1. The *x*-ray will destroy the epithelial cells of carcinoma superficially situated as in epithelioma. The *x*-ray seems to possess a selective action on the epithelial cells of carcinoma, due probably to their possessing lower resisting powers against the agent than that possessed by normal epithelial cells. When superficially situated so that the furthest cells are within a centimeter of the surface, a mass of carcinoma melts down under the *x*-ray, the individual cells dying become granular and are absorbed without gross evidence of necrosis or of tissue change, beyond that of reddening of the surface and the so-called *x*-ray reaction. Sometimes, however, where a large mass of carcinoma is attacked, it may soften and break down, and be separated from the normal tissues something like the breaking down of a gumma.

When the carcinoma is very thin and very superficial, as an epithelioma of the face, of the rodent ulcer type, not yet involving the tissues underlying the skin, the disappearance of the lesion and the restoration of the surface to almost normal, with slight evidence of scar tissue, can confidently be looked for after about 20 exposures of 10 minutes daily or every other day, with a soft tube from 30 to 110 volts and 2 to 4 amperes.

When the epithelioma is a thick mass of new tissue, as an epithelioma of the lower lip as thick as the finger, the *x*-ray will produce extensive change with destruction of many of the carcinoma cells, and sometimes of all of them with resulting cure. More frequently, however, even under the treatment the process will extend and the lymphatics become involved.

In recurring carcinoma of the breast with recurrence in and about the scar, with nodules in the skin and immediately beneath this, the *x*-ray will produce an absorption of the masses even of considerable size—the size of an English walnut. If these masses are the only locations of carcinoma in the body, a cure might be hoped for with their disappearance, but, unfortunately, with these masses are usually masses in the mediastinal and other lymph glands, and, in spite of the disappearance of the skin masses, the patient goes on to death from general carcinomatous invasion, apparently, however, being benefited to some extent both locally and generally by the treatment.

In cases of deep-seated carcinoma such as stomach, larynx, superior maxilla, mouth, etc., I have seen no evidence of benefit beyond the statement of the patients that they felt better, had less pain, etc., some improvement in general condition. In every case the lesion extended, and in none was a cure obtained.

In estimating the value of the *x*-ray in the treatment of carcinoma there are three facts which must be especially considered and which seem to control largely the results:

1. The situation of the lesion, whether superficial or deeply situated.

2. The rapidity of the growth of the cells and the resisting power of the carcinoma cells in the particular case.

3. The size of the new growth.

In regard to the first, the destructive action of the *x*-ray on cancer cells is in direct proportion to their superficial position, i. e., the more superficial, the greater the destructive effect; the deeper, the less the destructive effect. The depth at which the destructive effect (of the *x*-ray on cancer cells) can, with our present technic, be with any confidence expected does not seem to greatly exceed a centimeter. In regard to the vitality of the cancer cells in the particular case, I think it is quite clear that the cancer cells differ markedly in different cases in regard to their resisting power to the *x*-ray. The rapidity of the growth seems to be a fair index of their resisting power to the *x*-ray., the very slowly-growing cancer having less, and the rapidly-growing greater, resisting power. Depending on the differing resisting power and the superficial or deep situation, some lesions disappear under the *x*-ray treatment, some remain stationary and some continue to grow even while under treatment, apparently unaffected by it. The size of the lesion is of importance and the value of the *x*-ray varies in inverse proportion to the size of the growth, the smaller the growth, the more evident the effect, the larger, the less effect. A small superficial epithelioma is readily destroyed; a thick, large epitheliomatous mass, with difficulty or not at all, by any amount of the agent which it is permissible to employ, and even though many of the cells in such a growth may be destroyed, enough remain to bring about regional infection, which may become evident even during treatment.

The question which has been asked, i. e., whether under some circumstances the *x*-ray stimulates the growth and dissemination of the cancer cells, is one which it is at this time difficult to answer. Personally, I have seen no evidence of this. I have seen, to be sure, cases of cancer grow with great rapidity and widespread dissemination occur while the cases were under treatment, but we see the same thing happen frequently in cases which are not under any form of treatment, and I have interpreted the cases, when rapid growth occurred while under the *x*-ray treatment, simply as being cases which were not influenced in any way by the agent and believed that the same rapid growth and dissemination would have occurred with or without the *x*-ray treatment.

What should be our position in regard to the use of the *x*-ray as a therapeutic agent in carcinoma?

It is, I believe, the treatment of choice in slowly-growing superficial epitheliomas, the rodent ulcer type, especially those of wide extent without regional involvement, and especially lesions of this kind situated about the face and eyelids where a radical removal of the lesion with the knife would result in marked disfigurement and deformity from the resulting scar, even when skin grafting is employed. In all other forms of carcinoma, where the lesion is of rapid growth or

more deeply situated than the skin, or even when limited to the skin is of considerable thickness, the case should be treated by extirpation and followed by a course of *x*-ray treatments, probably, as a rule, about 20 exposures immediately after the healing of the operative wound.

I think that this position—this combination of the knife and the *x*-ray—is logical on the following grounds:

1. With the exception of the carcinomas of the rodent ulcer type above described, little can be expected from the *x*-ray in the treatment of primary carcinoma, therefore no time should be lost with its use, and, where conditions warrant, the carcinoma should be widely extirpated in accordance with approved surgical methods.

2. As has been repeatedly shown (especially in cases of breast amputation for carcinoma where recurrence has taken place in and about the scar), these secondary masses can be made to disappear with the use of the x-ray. There can be but little doubt that these secondary nodules, masses of epithelial cells the size of a bean or a walnut, were at the time of the operation very small collections of cancer cells which gradually grew from microscopic to macroscopic proportions, and it is reasonable to suppose that if the *x*-ray can destroy these bean-sized and walnut-sized cancer masses it could much easier have destroyed the microscopic masses of cancer cells from which they developed. I believe, therefore, that we should give this post-operative *x*-ray treatment a thorough and extended trial in our carcinoma cases, and believe that we shall considerably increase our number of permanent cures after cancer operations by this means.

The most interesting question, to my mind, in connection with the action of the *x*-ray on cancer cells is this: Would it not be possible in some way to so extend the action of this agent which has the power of destroying cancer cells under certain conditions—that is, at certain depths and cells of certain resisting powers—to a point where it can destroy them under all conditions? The fact that under certain circumstances, as Hodgkin's disease and lymphatic leukemia, the *x*-ray does produce effects on masses of cells of low resisting power at great depths, might encourage us to hope that under certain favorable conditions it might affect cancer at great depth.

Of course, if this could be accomplished our cure for carcinoma would be found. As it is to-day, the *x*-ray as a cure for carcinoma has, as we have seen, a very limited field. In answer to the last question, I have thought that the desired result might be accomplished in one of two ways, or possibly both. First, that physicists might so improve our *x*-ray apparatus that we could obtain the destructive effect on the cancer cells at all depths, and yet without too great danger to the intervening tissues, and, second, that it might be possible to so diminish the resisting power of the cancer cells by some means, as, for instance, the ligation of the arteries supplying the region, thus shutting off the blood supply, or by means of some chemical agent introduced either into the general circulation or locally injected, that even with the *x*-ray as at present developed we might obtain destructive effects at greater depths. In connection with this last proposition my mind naturally turned to iodin and arsenic as the agents which have shown evidence of power to affect deep-seated masses of new cells of low vitality, as iodin in syphilis, actinomycosis and blastomycosis, and arsenic in malignant lymphoma (Hodgkin's disease).

In working out this idea we have made some experiments to determine the effect of the *x*-ray on solutions of iodid of potash to determine whether it would produce any chemical change and set the iodin free.

The first experiment was simple, and interesting in its results. We took a solution of starch and iodid of potassium and submitted it to a 10-minute exposure of the *x*-ray, such as we used for therapeutic purposes. We had control solution under the same conditions minus the *x*-ray. It was found that the *x*-ray liberated about twice as much iodin as was liberated from the control solutions.

After all, however, the clinical test of such a therapeutic scheme is the important test, and we have employed this method of treatment, which, I think, should be called radiochemic therapy, in a number of cases. In a case of inoperable mouth carcinoma I ligated both external carotids, and placed the patient on iodid of potassium internally, and the *x*-ray. The tumor was diminished greatly in size, and almost disappeared. The patient died four months later of pyema, and the post-mortem showed a mere remnant of the original growth, and no regional or general involvement. Two of the most striking cases of benefit from this method of treatment have, however, not been in carcinoma, but in other conditions—one a case of actinomycosis of the neck, which cleared up surprisingly rapidly under the *x*-ray and iodid of potassium, and the other a tumor of the colon, already referred to, almost certainly tuberculous, which has almost disappeared under the same treatment. In our carcinoma and sarcoma cases we have combined with our *x*-ray either iodid of potassium or arsenic, and, although I have been encouraged by the results, the cases are too few and the difficulties in the way of determining the value of this combined treatment are so great that it is impossible at present to draw conclusions. I have, however, no hesitation in presenting this suggestion of composite therapy, with the hope that others may be sufficiently interested to investigate its possibilities.

It does seem plausible, however, that, given an agent which will destroy carcinoma cells and not the cells of the surrounding tissues under certain favorable conditions for its action, i. e., superficial situation and low resisting power of cancer cells, it is quite possible we may find some way of enhancing its action so as to reach cancer cells at all depths and of all degrees of resisting power and secure in this way a carcinoma cure.

In conclusion, the *x*-ray at present is indicated as a therapeutic agent:

1. In the superficial epitheliomas above described.

2. As a post-operative treatment in most of our carcinoma cases.

3. In our inoperable cases, as a justifiable piece of experimental work in the hope that this line of investigation may possibly lead to valuable results.

The dangers of the *x*-ray as a therapeutic agent are two, and these dangers should be especially pointed out to the general profession. The first danger is the possibility in all cases of producing a serious *x*-ray burn. This possibility can be reduced to a minimum by a thorough understanding of the technic, but can not be entirely done away with, as burns will occur even in the hands of experts of the greatest experience. The second danger, and the more important one, is the using of the *x*-ray in cases where it should not be used, where its use is of no benefit to the patient, where its use means valuable time

lost, where its use prevents the patient receiving the greater chances of cure offered by radical surgical removal of the disease. That this danger is a very real one is shown by the increasing number of easily operable carcinomas, such as epithelioma of the lip and cancer of the breast, which now come to us after a futile and extended trial of the *x*-ray treatment. This means that in each one of these cases valuable time has been lost, and the chances of permanent cure diminished by the ignorant use of the *x*-ray. I have no hesitation in saying that the amount of damage for which the *x*-ray is responsible in delaying and preventing operation in carcinoma cases far outweighs the good it has so far accomplished. In discussing this subject this fact can not be too strongly emphasized.

PERISINUSAL ABSCESS OF THE LATERAL SINUS,

WITH METASTASIS IN LIVER AND STERNO-CLAVICULAR JOINT.*

GORDON KING, M.D.
NEW ORLEANS.

Aug. 1, 1901, there came for treatment in the Eye, Ear, Nose and Throat Hospital E. A., a white boy, 14 years of age, suffering with a chronic suppuration of the left ear which began in early childhood. The boy was of healthy parentage, and had been subject to very little illness during his life.

Six years previously he was operated on at the hospital for postnasal adenoids, but did not continue attendance at the clinic for the treatment of his ear, which had been carelessly neglected by his parents. In the latter part of July, a week before returning to the clinic, he had begun to complain of pain in the left side of his head about the ear and in the left temple, accompanied by fever and occasional irregular chills. He was dull and listless, and appeared to be in a state of febrile depression. His mental condition was good, however, the pupils normal, and no manifestations of cerebral disorder were apparent. No evidence of inflammation about the mastoid nor tenderness on pressure. Otoscopic examination revealed a large round perforation in the tympanic membrane and a small quantity of thick fetid pus in the ear canal. No granulations or polypi and no swelling of the canal walls. The pain he complained of was intermittent, deep-seated and at times very intense. Instructions were given to syringe the ear thoroughly three times a day with warm boric acid solution, instill ten drops of a bichlorid-alcohol solution after each cleansing, and to keep the patient under close observation.

He left the clinic, however, and was not heard from until four or five days after, when I was called by the family physician, Dr. Ernst, to see him at his home. His condition then was as follows: Decided typhoid state—dry, brown, coated tongue, sordes on teeth, considerable emaciation and debility. Bowels constipated and some enlargement and tenderness of the liver as elicited by percussion and palpation. Temperature ranging between 100 and 103 F., with slight chills at irregular intervals. Left hemicrania becoming more constant and aggravated, very slight ear discharge. Fearing phlebitis of the lateral sinus and jugular on the side of the affected ear, as an explanation of the pyemic course of the temperature, I made careful search for any sign of inflammation about the mastoid and the course of the jugular in the neck, but could find none. We decided to wait a day longer for the possible appearance of some localizing symptom. When next seen the patient showed no change excepting an increase of the hepatic tenderness. We decided at once to make an exploratory aspiration of this organ, but while Dr. Ernst had gone in search of his aspiration needle the patient had an evacuation of a large quantity of pus and blood from the bowels. Examination of the stool showed it to be characteristic of liver pus. Evacuations of this nature continued in diminishing quantity during the next few days with some relief to the local pain and the high temperature. The headaches still continued, however, and the asthenic condition of the patient increased. Consent was at last gained to have him removed to the hospital for exploration of the mastoid and sinus for focus of pyemic infection.

Operation.—On his arrival there, August 13, temperature was 102 F., pulse 96 and respiration 28. Being much fatigued by transportation, he was allowed to rest until the following day when, after a free exposure of the mastoid, the antrum was laid open and a small mass of granulation tissue and pus removed. The bone otherwise appeared healthy. The lateral sinus was next exposed in the posterior aspect of the mastoid opening and pus began to ooze from between the sinus wall and the upper part of the wound. This when traced up was found to come from a cavity containing about a drachm of creamy yellow pus in contact with the membranous wall of the sinus. This was freely exposed, evacuated of pus and a gauze drain applied. The sinus seemed to be normal otherwise and exploration brought out a flow of pure liquid blood. There was no evidence, therefore, of thrombophlebitis.

The operation was well endured, but a severe chill came on three hours later and the boy complained of pain about the left sternoclavicular joint. Some swelling and tenderness were discovered at this point. On the following day, August 15, he appeared much brighter, with temperature 99.8, pulse 86, respiration 24; no further complaint of headache. Noticeable redness and swelling at sternoclavicular articulation; also marked tenderness over region of spleen. Hepatic tenderness still persisted and bloody stools continued.

August 16, another chill and rise of temperature to 103 F. Pain in splenic region more intense. August 17, emesis of dark bloody matter. Hepatic and splenic tenderness much diminished. Clavicular joint much inflamed. Mastoid wound dressed and pus cavity thoroughly irrigated. Favorable progress up to August 19, when the occurrence of sharp pains in chest caused me to make a close examination of lungs. Nothing abnormal was found. The clavicular joint became so painful that an incision was made into it, but no pus was evident. August 21, again slight hematemesis. Convalescence thenceforth was uninterrupted and rapid, and in three weeks patient was pronounced completely well.

My chief object in relating the clinical history of this case is to elicit your interest and to evoke some discussion on a subject which, in recent times, has been receiving considerable attention in otologic circles, particularly among our French and German confrères. It is that of septicopyemia of otitic origin in its relation to thrombophlebitis of the lateral sinus.

As time and the occasion do not permit me to enter into a thorough review of such a broad subject in all its phases, I shall limit my remarks to that point on which there has been much discussion, with various theories, and which is still a mooted question in the pathology of one of the gravest complications of middle ear suppurations. That point is the mechanism or the route of infection of the blood current in that class of cases where pyemia develops without apparent involvement of the lateral sinus or the jugular vein. Until very recent years but one form of otopyemia was generally known, characterized by irregular and frequent chills, marked oscillations of temperature and the development of metastatic abscesses, coming on in the course of a purulent otitis media, and which indicated a thrombophlebitis of one of the large venous channels coursing in the vicinity of the temporal bone, usually the sigmoid sinus or the jugular vein.

* Read at the Fifty-fourth Annual Session of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. George L. Richards, O. Joachim and G. V. Woollen.

Schwartze, in 1867; Dalby, seven years later, and Politzer, in 1882, cited cases, however, in which septicopyemia occurred as a complication of middle ear suppuration without phlebitic involvement of the lateral sinus or jugular. It is to Körner, however, that credit must be given for having described this form of pyemia as a distinct pathologic entity, though differing but slightly in its clinical aspects from the classic form. Since the publication of this valuable research it is generally accepted that, from a pathogenic point of view at least, there exist two varieties of otopyemia; pyemia of otitic origin with thrombophlebitis, and pyemia of otitic origin without thrombophlebitis.

Recognition of this fact has brought out a number of observations of cases of this latter variety, and hence arose the question of how the infecting germ gained entrance into the circulation for dissemination throughout the body. Among the most recent contributions to the literature on this subject I must call attention to those of Schmiegelow and Laurens, who have both delved profoundly into the study and research along this line and given a thorough exposé of the principal points at issue. I gather from their writings that five different theories have been advanced as to the true pathogenesis of the affection which we shall consider seriatim.

The first is that which has among its strongest advocates Jansen and Leutert, two of our German contemporaries. Both of these excellent authorities ardently contend that the occurrence of pyemia secondary to middle ear suppuration is pathognomonic of lateral sinus or jugular thrombosis. When confronted with the observations of those cases in which liquid blood has been found coursing through these channels they claim that a thrombosis does not necessarily mean an obliteration of the lumen of the vein by a complete clot, but that there exists a non-obliterating or parietal thrombosis where a thin clot forms on the inner wall of the vessel and does not seriously interfere with the circulation, from which the infected embolic clots or the free pus organisms themselves are carried away by the blood current to find lodgement in the lungs, or pass through into the arterial circulation and cause metastasis in remoter parts. This form of thrombosis, it is claimed, occurs more often as a complication of acute than of chronic otitis, as the virulence of the infection gives rise to pyemic symptoms before obliteration of the lumen of the vessel has had time to take place.

This seems an admission on the part of the advocates of this theory in favor of the explanation advanced by Schmiegelow that a parietal thrombosis is simply the beginning of an obliterating thrombosis. To demonstrate either clinically or anatomically in the living subject the presence of an incomplete clot of this kind is extremely difficult and has not, so far as I can ascertain, been yet accomplished. When exploratory puncture of the sinus is made and liquid blood is found to be flowing through it we take it for granted that no thrombosis exists, but we can not say that there may not be a thrombosis limited to the internal coat of the sinus at that point or at some other point above or below it. Hessler and Leutert have both cited cases in which the thrombosis was limited to the bulb of the jugular.

In a case that came under my own observation the sinus was found empty when opened through the mastoid process, but obstructed both above and below by a firm clot. The external wall showed no signs of inflammation at that point. Hessler has found 12 cases recorded where pyemia with metastasis existed and in which autopsy showed the lateral sinus normal. Mention is not made, however, of the state of the other sinuses and the jugular. On the other hand, Brieger and Schwaback have reported cases of otopyemia of fatal termination in which postmortem examination failed to reveal any affection either of the lateral sinus or the jugular. These facts are, in themselves, proof sufficient that, contrary to the belief of Jansen and Leutert, we may have pyemia of auricular origin without thrombophlebitis of the lateral sinus or jugular.

Another theory is that accredited to Moos, who is of the opinion that where phlebitis of the lateral sinus can not be demonstrated the pyemia is dependent on thrombosis of one or both of the petrosal sinuses. There are no special symptoms to indicate such a condition, and postmortem examination alone can offer the necessary proof.

Hessler propounds a third theory, and is defended by Körner, to the effect that pyemia of this character is due to an osteophlebitis of the small veins in the temporal bone, which become affected in the course of the mastoid inflammation. The phlebitis does not affect the larger blood channels, but the infected emboli are emptied into them and are carried off to find lodgement in distant parts. Such an explanation seems quite plausible and has many adherents, but to my mind does not clearly account for the fact that the metastatic deposits in this particular form of otopyemia are so prone to pass through the lungs and to be disseminated through the arterial system, which is a generally accepted fact. Neither does it find substantiation in the number of cases reported cured by a simple mastoid operation, which, while it demonstrates clearly enough that the diseased mastoid cells may be the origin of the infection, does not indicate the route by which this infection enters the blood current. Fränkel is of the opinion that the lymphatics are the channels of infection, which also merits reasonable consideration, but which, like the other, lacks pathologic demonstration.

Lastly, we have the theory presented by Heyman and Brieger that the pus organisms themselves gain entrance direct into the circulation by penetrating into the osseous capillaries or those of the tympanic mucosa. This accords with the theory of Cohnheim in regard to diapedesis, and is founded on the well-known fact that leucocytes, which, in these suppurative conditions, may be impregnated with the pus organism, can pass through the vessel walls and serve as microscopic germ carriers to disseminate the foci of infection. It is difficult to understand how a body to any extent larger than the leucocyte or the germ itself could pass through the capillaries without being arrested in the lung structure.

On this account more than any other am I an exponent of this last theory, and a close observation of the clinical features and of the pathologic lesions in the case I record tends to strengthen my belief. Here we had to deal with a chronic suppuration of the ear which had invaded the antrum of the mastoid, but otherwise had caused little disease of the bone. The pyemia in this case evidently originated from the collection of pus lying under the dura and in contact with the walls of the lateral sinus.

The external coat of the sinus was scarcely changed by this contact and the lumen was not obliterated by a thrombus. If a parietal clot had formed its presence could not be detected and it must have undergone spontaneous absorption, as the patient made a rapid recovery after the pus cavity had been cleansed, which could

scarcely have happened had a thrombophlebitis been present.

I am of the opinion that either the free germs themselves or the germ-bearing leucocytes burrowed their way through the thin membranous walls of the sinus and gave birth to the metastatic process in the liver and the clavicular joint. An interesting feature of this case not to be left unnoticed was the spontaneous cure of the hepatic abscess by rupture into the bowel.

SYPHILIS IN THE NEGRO.*

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With the advent of his emancipation and his citizenship the negro earned his syphilis and bequeathed it (both by acquisition and heredity) to his posterity, to such a degree that he, in a great measure, became syphilized prior to his becoming civilized. Syphilis obtains in all of its forms in its most classic type in the negro by reason of his habits, his environments, his utter indifference to the disease and his carelessness and delay in having it treated. My experience, covering a period of more than six years in a large clinic composed almost entirely of negroes, justifies me in making the statement that 75 per cent. of that class of negroes who come as patients are syphilitic (either acquired or hereditary). I could present you with a museum of Jonathan Hutchinson's teeth, bridge-shaped noses, rickets, and Parott's disease, showing the result of herditary syphilis in negro children.

PRECOCITY.

The precocity of syphilis in the negro is striking. I have the opportunity in hospital work to see it in both races. In the negro it is not uncommon to encounter the chancre, the mucous patches, the secondary skin eruptions, the iritis, the general periostitis—especially in the sternum, the tibiæ and the costal cartilage—and the high grade of syphilitic fever existing simultaneously: fulminating syphilis or acute syphilis, if you please, overwhelming in nature, producing profound systemic infection from which all the tissues of the body suffer, especially the arteries, the heart, the kidney and the brain. It has been said by some—and I am afraid they are not acquainted with the facts—that syphilis in the negro will run its course uninfluenced by medication without deleterious results. I am not prepared to confirm this statement; syphilis leaves its marks that can be readily detected by the close observer.

THE RELATION OF SYPHILIS AND PHTHISIS.

The prevalence of phthisis and its high mortality and its rapid course in the negro has been commented on by nearly all southern clinicians and teachers. In making a review of the subject I have not seen sufficient reasons given for its appalling mortality. I encounter it daily, but have never seen a negro with phthisis recover, it matters not what comforts he may have, what his sanitary surroundings may be, or what precautions he may take after the diagnosis has been made. Acute pneumonic phthisis is the most frequent type observed. I have often seen it run through all the stages and terminate fatally in six weeks, when the first examination had shown it to exist only in its incipiency.

The question might well be asked, why this high mortality and this rapid course of phthisis in the negro? Basing my reasons on my clinical observation, I think a rational conclusion can be reached as to a reason for this mortality and for this rapid course. In the majority of patients coming into the clinic with phthisis well developed, a clear history of syphilis, either recent or remote, can be found. The damage that syphilis has already wrought in the system by its effects on the blood vessels, the heart, the kidneys and the general nutrition brings about a lowered vitality, a want of resistance on the part of the patient to the invading enemy. The field is rich and ready for the entrance, cultivation and growth of the tubercle bacilli. This pre-existing or coexisting syphilis gives the right of way to this captain of the men of death, tuberculosis. Whenever a patient, whether white or black, contracts tuberculosis, having had a recent active syphilis, I always look for a rapid and fatal termination. Tuberculosis writes its seal thus on this class of patients: "All hope abandoned when I enter here." I have often seen acute syphilis and acute tuberculosis coexisting in the negro. They are the mighty monarchs which are yearly sweeping thousands of ignorant negroes from the face of the earth. Unquestionably mixed infection plays a great rôle in the production and mortality of phthisis.

SYPHILIS OF THE PLEURA.

I often encounter insidious accumulations in the thoracic cavity where there has been no history of a previous pneumonia, pleurisy or nephritis, where, to the casual observer, the physical signs are negative and there is no symptoms that would lead one to suspect any trouble in the chest. These insidious accumulations, whether exudates or transudates, inflammatory or non-inflammatory, are marked characteristics of a recent syphilis. I wish to report the following illustrative case:

CASE 1.—May 20, a male negro, aged 25, came to the clinic. He suffers with extreme pain in the abdomen, has a constant desire to go to stool, has much straining with passage of small quantities of mucus and pus; the abdomen is rigid and retracted. I found a pronounced rectitis as far up the bowel as could be seen by the speculum. To the touch the ulcers were hard and indurated. There was marked periostitis in sternum, tibiæ, radii and costal cartilages. His temperature was 102, pulse 110. He had no cough, no dyspnea, but absolute fixation of the right side. There was absence of vocal fremitus on palpation, absolute flatness anteriorly, posteriorly and laterally on percussion. Auscultation revealed absence of all respiratory sounds. Aspiration withdrew the typical straw-colored serofibrinous fluid. He gave no history, in spite of close inquiry, of a previous pneumonia or pleurisy. Two years ago, while working on a levee on the Mississippi River he contracted syphilis and took treatment of no consequence except patent medicines. His health constantly failed. Chills and fever, accompanied by this proctitis, developed. He continued with great effort at his work, but was forced to abandon it, and came to Memphis in January last. There was no ascites, enlargement of the liver, edema or albumin in the urine. Dr. Malone of the surgical staff withdrew nearly a gallon of serofibrinous fluid by aspiration.

A striking feature of these accumulations is their enormous quantity. In May, 1900, I withdrew from a male negro, who had about the same history as the one above mentioned, two gallons and a pint at one sitting, with the best results. This case serves merely to point out the frequency of this condition. I can explain these accumulations and their not producing symptoms and physical signs with reference to the chest, only by assuming the gradual onslaught of syphilis spending its force in a measure on the pleuræ and lungs. Have we not more syphilis of the pleuræ and lungs than is generally supposed? Could our pathologists not give us more light on this question?

*Annual Address before Chicago Medical Society, 1903.

SYPHILIS OF THE HEART.

What a broad field! I regret exceedingly that my limited time prevents my going into this question more than to touch on some of the salient points. The negro race, as a clinic from which to draw, could supply material out of which an ideal text-book on diseases of the heart could be written. In passing let me congratulate you, as well as the west and the medical world, on having in your city an author who in my opinion has written the most exhaustive, most comprehensive, and the most ideal text-book in any language on diseases of the heart. I refer to Dr. Robert H. Babcock.

Aortic lesions occur as frequently as mitral lesions, or even more so from the fact that syphilis so often plays a leading rôle in the production of a sclerosis from which valvular lesions at the aortic opening arise. Our text books dwell at length on inflammatory rheumatism in the production of an endocarditis from which leakage or stenosis at the mitral valve occur. In a careful perusal of such standard works as Broadbent, Sampson, Cheadle, Sibson, Gibson and Babcock, I failed to find any mention of syphilis as an etiologic factor in the causation of endocarditis. In studying heart lesions, both mitral and aortic, in the clinic, I find a clear history of syphilis more often than of inflammatory rheumatism. I believe acute syphilis produces pronounced acute endocarditis from which lesions, both valvular and muscular, may arise in all their classic stages and in their most severe forms. In this precocious type of syphilis the whole structure of the heart is very often attacked, the syphilis seeming to spend its force on this organ, nearly all the leading symptoms and physical signs of aortitis, myocarditis, endocarditis and pericarditis existing as a grand whole of cardiac symptomatology, the postmortem findings verifying the composite clinical picture. I believe that we have in these cases a true and well defined "carditis." This is a term that might be used with more significance in our text-books; but examine the standard works on the heart and you will find that the term is seldom used or mentioned. Dr. Krauss, one of the most eminent pathologists in the south, states that in his postmortems on cases in which death has occurred suddenly in these cardiac cases, where there was a history of fulminating syphilis, he often found arteritis, endarteritis, atheroma, arteriosclerosis, endocarditis, pericarditis and myocarditis existing, denoting different degrees of inflammatory and degenerative changes. Permit me to report two cases as types which are constantly coming under my observation:

CASE 2.—June 3, a male negro, aged 28, was seen at clinic. He had a temperature of 103, pulse 130; history of chancre about three months ago, throat ulcerated, squamous syphilids on all parts of body, marked periostitis in sternum, tibiæ, radii and costal cartilages. He stated in his own terms that his bones and his head pained him to such a degree that he had to walk the floor at night. The liver was tender and enlarged. He complained of having had several attacks of asthma at night the week before he came to the clinic. There was some edema of the lower extremities; dyspnea and cough were marked. He complained constantly of retrosternal pain radiating to the back, a symptom indicative of angina. On inspection the apex beat was seen to be diffused and tumultuous and displaced downward to the sixth interspace and fully three inches to the left. There was some throbbing of the carotids and jugulars. The pulse was full and bounding, and to a certain degree incompressible in the radial artery at the wrist. On auscultation there was a loud blowing systolic murmur at the apex easily heard in the axillary line and heard more distinctly behind at the inferior angle of the scapula than at the apex—in other words, all the physical signs of mitral insufficiency. At the base there was a harsh blowing systolic murmur. From the history, the physical signs and the symptoms I made a diagnosis of a general aortitis and mitral insufficiency. The question arises, was there not an aortitis primarily extending down into the endocardium, from this endocarditis and sclerosis, the mitral leakage following as a consequence. In spite of the closest inquiry he denied ever having had inflammatory rheumatism. The prognosis in this case is grave, possibly my assistant will sign his death certificate before I return to Memphis.

CASE 3.—May 28, I saw a negro woman, aged 26, occupation cook. She married three years ago, and has had three miscarriages, at three, four and seven months respectively. About a year ago she left her husband because he gave her, to use her own words, "the bad disease." Judging from the history she gave me, the attack of syphilis she had was acute and violent. She gave no history whatever of ever having had inflammatory rheumatism. She had a temperature of 105, pulse 140. A few days previous to my seeing her she stated that while washing some clothes she was attacked by a most violent chill. I found the liver enormously enlarged and very tender on palpation. Periostitis in sternum and tibiæ was so pronounced that she would cry out with pain whenever I attempted to palpate or percuss in these regions. The conjunctivæ were slightly jaundiced, tongue large, heavily coated and flabby, rigors and profuse sweats were pronounced. She was semidelirious. There was no edema in the lower extremities, no albumin in the urine, but all kinds of casts in abundance. She stated that she had been treated by a quack a few months ago for dysentery, but on examining the rectum I found a proctitis so pronounced that you might say that stricture of the rectum was in the creative stage. The heart action was tumultuous, the apex beat so bounding that you could see it several feet from the bed. On auscultation there was a blowing murmur at the apex, systolic in time, heard in the axilla, indicative of mitral insufficiency, also a spinning top diastolic murmur at the base, transmitted up and down the sternum. I gave as a diagnosis, malignant endocarditis engrafted on a syphilitic aortitis and myocarditis. While attempting to take her medicine she died, on the morning of June 12. The family would not consent to autopsy.

SYPHILIS OF THE RECTUM.

In conclusion I wish to call your attention to syphilis in the rectum. I have recorded 48 cases of stricture of the rectum, of which 47 were found in negro women, and the other in an old negro man. This last was malignant. One was tuberculous in a negro woman with acute pneumonic phthisis; 46 were undoubtedly syphilitic; the youngest patient was a prostitute 17 years of age. You will note that all these strictures except one were found in the female. I do not think that our text-books on diseases of the rectum are as clear on this subject as they should be. They do not dwell sufficiently on the subject of pathology. I believe if the general practitioner was a little more careful in his examinations where patients present themselves complaining of pronounced constipation he would find more strictures of the rectum in his practice. Not long ago I read a paper on this subject before the Tri-State Medical Association of Arkansas, Mississippi and Tennessee. A leading physician and gynecologist of my city, who has been practicing for twenty-seven years, remarked to me after having read my paper that he had never seen but one case of stricture of the rectum and that was while he was an interne in Bellevue Hospital. It can be readily seen why stricture of the rectum, syphilitic in nature, should occur so much oftener in the female than in the male. The chancre on the posterior wall of the vagina can from contact easily infect the rectum. In these chancres there is often mixed infection, namely, syphilis and gonorrhea. Authorities state that the stric-

ture of the rectum is an expression and a condition, the results of tertiary syphilis. In the analysis of my cases I have found that the proctitis from which the stricture resulted in a majority of the cases developed early along with the secondary eruption.

At Saratoga, in the discussion on syphilis, Dr. Osler used these words: "He who knows syphilis well, knows it all." I will not put it so strongly, but will say: "He who knows syphilis well, is fairly well equipped to practice internal medicine."

RAPIDLY GROWING SARCOMA OF THE FEMUR.

REPORT OF A CASE: DISARTICULATION AT THE HIP JOINT; RECOVERY.*

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ST. LOUIS.

Sarcomata arising from the femur, the bone most liable to become affected, may be grouped according to point of origin into central and peripheral, the first arising from the osteoblastic layer lining the medullary canal and the second from the osteoblastic layer separating the periosteum from the bone. The first group is usually a giant-celled or myeloid tumor, though the spindle or round cell may be found. The second group is usually round- or spindle-celled sarcoma (never myeloid), though mixed, round and giant cells are not uncommon. The peripheral are more painful, occur earlier in life, are more malignant and pulsation is seldom observed.

When growing near the middle of the shaft, the peripheral variety may be restricted to a portion of the circumference or entirely surround it, producing a fusiform swelling. In such specimens the shaft of the bone traverses the tumor and may, beyond a slight amount of erosin, be unaffected by it. In these cases, however, the medulla may become infected by the cells making their way along the haversian canals.

The second group is more liable to the various metamorphoses and degenerations affecting sarcoma generally, and is more liable to calcification and ossification than central tumors. In some instances the affected bone is greatly thickened in the parts related to the tumor.

The extensive ossification associated with periosteal sarcoma is fully understood when we recognize the fact that bone making is the essential feature of the periosteum.

Giant-celled sarcomata are usually of slow growth and involve the lower end of the femur; they are generally regular, spherical, and more or less firm. Owing to the resistance offered by the articular cartilage, neighboring joints are seldom involved until very late in the disease.

Gross, in reviewing 165 cases of sarcoma of the long bones, found 42 per cent. giant-celled tumors, 21 per cent. spindle-celled osteoid sarcoma, 7.5 per cent. spindle-celled, 7 per cent. round-celled and 4 per cent. pure periosteal spindle-celled sarcoma.

In all varieties the growth attacks the lower epiphyses most frequently. Lymphatic involvement is very unusual, though Loeffler states that it occurs in 13 per cent. of the peripheral sarcoma.

* Paper read, patient and specimen presented at the forty-sixth annual meeting of the Missouri State Medical Association.

As a rule, where the inguinal and femoral glands are enlarged it is due to other causes, microscopic examination showing no sarcomatous changes. Tumors occupying the center of the diaphysis in growing cause expansion of the osseous boundaries, producing a round- or spindle-shaped swelling, causing the bone to become so thin as to be broken on the slightest exertion. Not infrequently the first symptom which directs the patient to the surgeon is fracture of the bone through the tumor, which, though rare in childhood, is frequent in young adults. It occurs in about 60 per cent. of the cases.

The prognosis of sarcoma is bad; three-fourths are of the periosteal, the most malignant variety. Bland Sutton says the duration of life rarely exceeds eighteen months.

Bork collected 111 cases of disarticulation of the hip joint for sarcoma of the femur operated on in the clinics of Europe, none of which could have been considered cured. Jeckel reported 35 cases operated on in the clinics of König and Bran, 4 cases of which were considered as having completely recovered. He reports having found 6 cases in the literature, more than four years having elapsed in each case without evidence of return. These cases were operated on by Holmes, Rose, Kramer, Weisenger and Von Mikulicz.

Photograph showing the middle third posterior aspect of femur.

NARRATION OF CASE.

The little boy which I present is James Paul, an American, age 8 years, who presented himself during March, 1901, suffering from pain about the middle of the right thigh.

Family history negative. Has had all the diseases of childhood, though apparently well for two years prior to five weeks ago. He suddenly complained of pain about the middle third of the right thigh; severe, especially at night, of a dull aching character, which constantly increased for several days; then a physician was called, whose treatment consisted of rest in bed, application of heat and administration of opium.

Examination showed the patient to be fairly well nourished, though during the preceding five weeks he had lost 15 pounds. Temperature 103, examination of the urine negative. The chest, abdomen and lower limbs were apparently normal except for a fullness of the lower third of the right thigh.

The measure of the knees across the center of the patellas showed no variation in size, but the right thigh at the junction of the middle and lower third was 3 cm. larger than the left. The knee was flexed and the lower part of the thigh exceedingly sensitive on pressure.

Fluctuation could be detected and a diagnosis of abscess was made. An incision about 5 inches in length, the lower end of which was just above the knee joint, was made, and between six and eight ounces of pus escaped. There was found much enlargement of the middle third of the femur, and a posterior projection was removed and subjected to a microscopic examination. It proved to be a small round-celled sarcoma, and disarticulation at the hip joint was recommended.

The following day a straight incision about six inches in length directly over the center of the great trochanter was made parallel with the long axis of the limb, the circumflex arteries ligated, the trochanteric muscular attachment severed close to the bone, and the capsular ligament was

divided transversely at the upper and posterior aspects. The remaining portion of the capsular ligament was severed when the thigh was brought into position of slight flexion. The head of the bone was dislocated on the dorsum of the ilium and the trochanter minor and upper parts of the femur cleansed. The dislocation was then reduced, Wyeth pins inserted, an Esmarch applied and a curved incision made six inches below the great trochanter, the vessels ligated, skin flaps made and thigh removed.

Just thirty-six minutes after the operation was begun the dressings were applied. The patient made a rapid recovery, the wound healing throughout by primary union; he was discharged three weeks later.

The tumor was examined by Dr. B. Meade Bolton, director of the Pathological Laboratory of the Medical Department St. Louis University, whose report is as follows:

"The tumor occupies nearly all of the posterior aspect of the middle third of the femur. It apparently arises from the osteoblastic layer separating the periosteum from the bone. A conical spur of bone, with the base measuring about five square centimeters, attached to the femur, arising at the junction of the lower and middle third. This spur is somewhat spongy, and extends upward and backward for about 10 cm. The bone around the base is eroded, and the posterior face of the femur is also eroded superficially from the base of the osteoma down to the popliteal plane. Firmly attached to this spur of bone, or rather blending into it without a sharp demarcation, is a fleshy mass, which was found to consist on examination of microscopic sections of embryonic connective tissue cells. These were mostly small round cells, but large round cells and spindle cells were also more or less abundant. From the clinical history and microscopic findings the tumor must be regarded as a small round-celled sarcoma, containing also large round cells and spindle cells. The medullary canal and bone marrow are apparently normal."

His condition has steadily improved and there is absolutely no evidence of return. During the last twelve months he has gained 22 pounds.

2900 Washington Avenue.

Clinical Report.

A CASE OF MARJOLIN'S ULCER.

HARRY M. SHERMAN, A.M., M.D.

Professor of Surgery, Medical Department, University of California; Surgeon to St. Luke's Hospital; Orthopedic Surgeon to the Children's Hospital, San Francisco.

SAN FRANCISCO.

History.—In the winter of 1901-2 I saw an elderly gentleman who for over twenty-five years had had an ulcer with bony floor on the back of the right ankle. Originally there had been an open comminuted fracture of the tibia, astragalus and os calcis; this had become infected, there had been necrosis of the bone and exfoliation of fragments, but the ulcer had never healed and some bone had always remained exposed. All this time the man had lived an active business life.

Commencement of the Ulcer.—He applied to me because of an increase in the size of the ulcer and considerable pain. I suggested the removal of the dead and infected tissue, to be followed by rest, to permit healing. This was accepted, and the operation was done under cocainization of the sciatic nerve. For a time things went well and healing was in progress, but in about two months the pain returned and the wound began to ulcerate again, and this was most marked at the lower end, where a pit of considerable size was formed in the os calcis.

At this very time there grew up, out of the middle of the ulcer, a tuberous mass, fully 1.5 cm. across and equally as high or higher. From the first it was differentiated from the surrounding ulcerating surface; it bled easily, and was without sensation. Clinically, I thought it a sarcoma, as did two other surgeons, a physician and a pathologist. The latter was not wholly convinced, for he had examined portions of the mass, had found it to be only granulation tissue and could not agree with the clinical opinion, but he agreed with all of us that the leg should be removed.

Operation.—This was done by amputation through the upper third of the leg, for the mass grew from the os calcis and not from the tibia. In another individual we might have been induced to go higher for the amputation, but a thigh amputation was considered too much risk for this old man who had sclerotic arteries and a bad heart. The operation was done under spinal cocainization. Healing was uneventful, and in due time an artificial leg was put on and the patient returned to his business. The amputated leg was sent to the laboratory, examined and sketched and portions of the margin of the ulcer sectioned and examined, but nothing was found.

Recurrence.—In about four months a tumor mass appeared in the popliteal space and was promptly removed under sciatic cocainization. The wound healed, but other masses soon appeared and replaced the first, pain supervened, later came ulceration and the whole clinical picture of extensive secondary epithelioma. Epithelioma had been the laboratory report from the first popliteal mass, and further search of the margin of the ulcer in the heel showed that at the lowest part, and only there, there was a primary epithelioma and that the lesion was a "Marjolin's ulcer."

Comments.—The case is reported because of its rarity. Da Costa[1] reported two cases and discussed the subject. He calls special attention to the changes which occur when a chronic indolent ulcer takes on malignant character; the beginning of pain and tenderness, the increase in the discharge, which also becomes foul, and the special induration and later ulceration of one part of the ulcer edge. None of these characteristics were present in the ulcer when I first saw it. Henry R. Wharton, in discussing Da Costa's paper, referred to four cases. In two the injury which resulted in the ulcer had been received in the War of the Rebellion and the cases seen only in recent years. In the third case the ulcer had existed thirty-eight years, and in the fourth fifty-eight years.

In the present instance the diagnosis was not made until the secondary growth made it for us. Even then the clinical expectation was that the laboratory report would be sarcoma because of the confusion arising from the curious mass of exuberant granulation tissue. A second study of the ulcer's margins showed that the epithelioma occupied no more than one-eighth of the periphery; that there was no induration at that point and no tumor; only, in fact, a little crater in the edge of the floor of the ulcer dipping down into the subjacent bone.

How long the epithelioma had been in existence I do not know; certainly it antedated the first operation, for the ulcer was not "chronic" after that date, and quite long enough, too, for a metastasis to occur before the amputation. At the same time this case, with those quoted, goes to show that it takes a very long time for irritation to inaugurate a malignant growth in a chronic ulcer.

1. Annals of Surgery, April, 1903.

Diabetes in Children.—Berkenheim announces from Kissel's clinic at Moscow that diabetes is not so rare among children as generally supposed. Bogoraz collected 500 cases in 1899. Berkenheim describes in detail the 2 cases observed in his experience, both terminating fatally. The mortality in Bogoraz's statistics was 90 per cent., and 13 of the children were under 1 year of age; 92 between 1 and 5; 147 between 5 and 10, and 234 between 10 and 15. The course of the diabetes is much more rapid than in adults, and is characterized by large output of sugar with little urea. Incontinence of urine is an important symptom, and any intercurrent or complicating infection materially reduces the amount of sugar in the urine. Edema is much less frequently observed than in adults. His communication is published in the *Klin.-therapeutische Wochenschrift*, X, No. 28, 1903.

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THE NEURONE DOCTRINE.

When, in 1891, Professor Waldeyer of Berlin brought together the histologic, embryologic and pathologic data regarding the unit in the nervous system and called that unit the "neurone," the term met with widespread acceptance. It served to crystallize, as it were, in a single expression, the qualities of the nerve unit which had been detected by the developmental studies of His, the pathologic researches of Ford and von Monakow and the morphologic investigations of Ramon y Cajal.

Since the term was introduced, however, further facts regarding the histology and physiology of the nervous system have been discovered. Our knowledge of the existence of delicate fibrillæ within the nerve cell protoplasm has been extended by the exquisite methods of Apathy and Bethe, the existence and distribution of those delicate particles known as "neurosomes" have been demonstrated by Held, the networks of Golgi and Bethe in the periphery of the nerve-cell body and the dendrites have been made the objects of special study, and a number of researches have dealt with the interesting question of the exact character of the relations of one neurone with another in various parts of the nervous system.

When Waldeyer wrote he was of the opinion that the nerve units or neurones possessed anatomically and physiologically a relatively complete independence of one another; he supposed that the terminals of one neurone entered only into contact relation with the cell bodies and dendrites of other neurones, but he took especial pains to point out that were this not true and were the interneuronal relations more intimate than that of mere contact, the doctrine of nerve units or neurones could still be held.

Two bitter antagonists of the neurone doctrine have been waging war against it in Germany. Nissl of Heidelberg and Bethe of Strassburg have fought it vigorously, each declaring that the conception of the nerve units is untenable and out of accord with known histologic and physiologic facts. On the other hand, the neurone doctrine, in spite of all objections raised against it, has been strongly supported by Barker in America, by Waldeyer, von Lenhossek, Verworn and Ziehen in Germany, by Mott in England, by Ramon y Cajal in Spain, and by Van Gehuchten in Belgium. Some of these authors, it is true, are unsettled as to the exact character of interneuronal relations which exist, and especially as regards the so-called contact relation, but this question they look on as only one phase of the great problem, far less important than the main anatomic, physiologic and pathologic facts on which the doctrine as a whole is based.

One of the strongest champions of the neurone doctrine in its totality, even the reassertion of the contact connection as the only interneuronal relation, is the distinguished neurologist of Madrid, Professor Ramon y Cajal. In a recent article,[1] this investigator not only supports the neurone doctrine and the idea of interneuronal relation by contact, but attacks the very foundation of Bethe's and Nissl's objections. He declares that Bethe has mistaken a pericellular precipitate for a nerve network, denies any continuity between the terminals of axons and collaterals and the intraprotoplasmic neurofibrils of the cells on which they end and urges that Bethe's method is unsuited for the solution of the problems on which he works. The article is a strong arraignment of the tenets of the anti-neuronists, and while we can not go into all its details here, we would call to it the attention of those of our readers who are interested in the controversy.

TUBERCULOSIS IN PRISONS.

It is encouraging to find that the attention of prison authorities and reformers is at last turning to the question of tuberculosis in prisons. The State of New York has led the way in providing the first isolation wards for the treatment of tuberculous prisoners, and the fifty-eighth annual report of the New York Prison Association discusses this question at some length. Conditions in the penitentiaries of this state certainly called for some vigorous action. Sing Sing is described as a "nest of tuberculosis," and Auburn is said to be little better. The third penitentiary is at Dannemora in the Adirondacks, and has a climate which has been proved to be favorable for the treatment of tuberculosis.

For some time it has been the custom to transfer tuberculous prisoners from Auburn and Sing Sing to Dannemora. In the ten-year period, beginning with 1891, 796 such cases have been thus transferred. During the first five years the total number of deaths from tuberculous diseases was: Sing Sing, 86; Auburn, 133; Dannemora, 34; total, 253. Up to the end of this first period little attention had been paid to the subject of tuberculosis in prisons and institutions, beyond the transferring of many to Dannemora, but during the succeeding five years far more systematic and effective methods of treatment and isolation have been adopted with the following results: The number of deaths in Sing Sing was 23; Auburn, 27; Dannemora, 22; a total of 72 deaths, which means an improvement of 71 per cent. in the second period over the first. Dannemora

1. Consideraciones Criticas Sobre la Teoria de A. Bethe Acerca de la Estructura y Conexiones de las Celulas Nerviosas. Trabajos del Lab. d. investig. biol. de la Univ. de Madrid, t. ii, 1903, pp. 101-128.

now has a new ward for tuberculous patients, although its accommodations are still far from adequate. It has an exercise court, and the prisoners are kept in the open air as much as is consistent with prison environment.

Most American prisons were built before the infectious nature of tuberculosis was a generally accepted fact, and it is doubtful if any great prison has yet been built with an intelligent purpose to protect prisoners from tuberculosis. At any rate, it must be admitted that by far the greater number of penitentiaries serve as well-planned incubators for the cultivation of tubercle bacilli.

In Joliet, Ill., there seems to be a typical prison of this sort. Its last biennial report states that on account of the overcrowding it is necessary to place two prisoners in many cells whose dimensions are seven by seven by four feet, and continues thus:

> When one thinks of two men spending never less than fourteen hours each day during six days of the week, and on the seventh day nearly twenty-one hours, in a space so reduced, and with a slop bucket in the cell for their use in responding to calls of Nature, which no care can prevent from being offensive and pestilential in every sense of the word, he is compelled to ask what excuse the great State of Illinois can offer for compelling the management of this penitenti..y to so deal with men who are required by law to serve sentences here. . . . .
>
> One visit to the cellhouses during the night time, a few breaths of the atmosphere coming from them, is all that is necessary to convince the most skeptical that the half has not been told by us, and we here and now enter our solemn protest against the continuance of such a system of herding men together to the detriment of their physical and moral natures.

The spread of tuberculosis must be favored by such conditions, and it seems almost impossible to accept as conclusive the optimistic health statistics in this report. We suspect that the practice of paroling prisoners in the last stages of consumption in order that they may die at home (a practice against which we have nothing to say), exists at Joliet, as in some other prisons, and it is largely responsible for the low death rate. The other Illinois penitentiary, at Chester, makes no such favorable showing. Fifty-six per cent. of the total number of deaths at Chester were from tuberculosis, an increase of 21 per cent. over the preceding two years, and the last report makes a strong appeal for suitable provision for the isolation and care of tuberculous prisoners.

Of course, we can not expect from the most favorable prison conditions as good results as from the usual sanatoria, where patients have their freedom and a more generous dietary than will be supplied in prisons. Yet in view of the increased knowledge as to the physical conditions necessary for the prevention and care of tuberculosis, and in view of the fact that the prison patient can be absolutely controlled by his physicians, we may yet hope that before too long tuberculosis may be stricken from the list of diseases contracted in prison.

THE CAUSE OF SCARLET FEVER.

From time to time announcements are made to the effect that the cause of scarlet fever has been discovered, but so far none of these assertions has received general acceptance. Even the assertion that scarlet fever is a streptococcus disease has not proved itself successful, in spite of the almost constant association of local and general streptococcus infections at least in severe cases of scarlet fever, principally because the streptococci isolated from cases of scarlet fever do not differ from the ordinary streptococci, and because of the further fact that while one attack of scarlet fever, be it ever so mild, confers a permanent immunity to subsequent attacks; this unfortunately does not hold true in regard to the various forms of streptococcus infection with which we are familiar.

It is significant, too, that while the recent studies of smallpox show that more or less extensive streptococcus infection occurs in practically every severe and fatal case of this disease, yet we do not think that any one would venture the assertion that smallpox is a streptococcus disease. In other words, there seems to be an analogous susceptibility to secondary streptococcus invasion in both scarlet fever and smallpox, a susceptibility that on account of the ubiquity of streptococci only too often is fraught with the greatest dangers to the patient. Concerning the assertions that certain bacilli and cocci are the cause of scarlet fever, we believe that the less said the better. Some of these assertions have been made the object of extensive exploitation in certain quarters that savor more of self-glorification than of true scientific spirit.

The description by Mallory of certain bodies in the skin of four cases of scarlet fever dying within forty-eight hours of the appearance of the eruption, bodies which he believes are protozoa, may be said to carry the investigation in the etiology of scarlatina into a new field. In another column of this number we give the principal points in Mallory's paper. It will be seen that the evidence of the nature of these bodies so far rests wholly on morphologic grounds. While it is true that it may be "difficult to explain these bodies as artefacts or as degenerations," yet it seems only fair to emphasize, first, that the protozoan, or speaking broadly, organismal nature of these bodies has not been proven definitely; and, second, that whatever their nature, their etiologic relation to scarlet fever is as yet equally lacking in definite proof, a fact that Mallory himself, though personally convinced of their protozoan nature, is far from asserting as established —a conservative attitude that must appeal to all who are familiar with the tremendous difficulties at present in the way of this form of investigation. The most that can be said now is that the finding of these bodies, which no doubt is largely owing to the great technical skill of their discoverer, and the interpretation as protozoa by an investigator of Mallory's healthy conservatism, give us reason to regard as not unreasonable the

hope that eventually this may prove the first step in unveiling the hitherto so well-guarded cause of scarlet fever.

TRADES UNIONISM AMONG HOSPITAL ATTENDANTS.

In a communication published elsewhere in this issue, a state of affairs is noticed that certainly deserves the attention of the profession, as it bears on a medical question, and a very important one—the care of the helpless insane. In the Cook County Asylum for the Insane, at Dunning, near Chicago, a labor union has been formed among the attendants and employes which is now demanding an increase of wages and a uniform scale. The former item is one for the taxpayers to consider. It seems to be a fact, however, that this institution has paid the highest wages with probably the worst service of any insane asylum in the State of Illinois, not to speak of other states where the wages are still lower.

A uniform scale, however, is a general leveling down and would make it impossible to obtain adequate service. Moreover, the mere organization of a union, taking out of the hands of the officials of the institution to a large extent the discipline and control of the employes, is a matter that should be protested against most emphatically by everyone who has the welfare of the helpless charges at heart. It is only at long and rare intervals that the institution has had a competent physician at its head. Some years ago an alienist of reputation held the place for a short time, but was finally ousted by the powers that were, but the good fight he made assisted in sending a number to the penitentiary for varying terms of public service. At the present time the institution has a man at its head who has reputation and experience, and it was hoped that he would have the free hand that is absolutely necessary to carry out the needed reforms. We do not think that the board of county commissioners is corrupt, as was the case in the former instance, but if it has not the backbone to resist the demands that are made on it by these outside organizations, it will be almost equally guilty, though unfortunately not equally punishable. The position of attendant in a hospital for the insane is not a hard one; the hours are long, but the work is interesting and the employment is considered very desirable by good attendants who have interest in their work. There is comparatively little risk, and much chance for personal improvement for individuals desiring it. In times past the positions at Dunning have been counted among the minor political plums and sought for accordingly. Therefore, the plea of hardships, etc., is a fictitious one, and should not be seriously regarded. Dr. Podstata shows that at the present time the pay is far above that of similar institutions. The question now is whether the insane of Cook County are to be under the control of the walking delegate or the skilled medical superintendent, who must have full control to regulate the discipline of the institution for the best interests of those under his charge.

Not long ago a labor organization, whose oath and obligation required fealty to it above all other obligations, religious and political, attempted to dictate to the United States Government and made a weak-kneed official yield, but ran against a rock a little later. Still more recently the organization of the fire department of the City of Chicago had to be promptly sat on by the city authorities. A similar movement which has made greater progress and become more firmly established in this public institution deserves the same treatment. No man entering public service should owe allegiance to any outside authority or organization; a labor-union "pull" and a political "pull" should be alike excluded. We trust the profession will take this matter up; otherwise we may see the expected reforms in the Cook County institutions defeated and the establishments relegated back to their former unenviable notoriety.

THE REPORT OF THE FRENCH YELLOW-FEVER COMMISSION.

In 1901 the French Government sent a commission to Rio Janeiro to investigate yellow fever. This commission was composed of MM. Marchant, Salimbeni and Simond, and it was placed under the scientific direction of the Pasteur Institute in Paris. The report[1] of this commission makes most interesting reading for American physicians, because it contains unequivocal confirmation of the epochal investigations of Reed, Carroll and Agramonte in regard to the mode of infection and the deductions therefrom as to prophylaxis—deductions of paramount importance, and the soundness of which have been demonstrated already in the most brilliant manner by the great work of Gorgas in the sanitary rejuvenation of Havana. The work of the French commission is noteworthy on account of the co-operation of over twenty men who nobly subjected themselves to the risks of the inoculations. Yellow fever is now a controllable disease, to a large extent robbed of its terrors and deprived of its former destructive effects on commerce.

Of the many details established by the French commission, special mention may be made of the following: The serum of yellow-fever patients is virulent up to the third day of the disease, but not later, and 0.1 c.c. (one-tenth) of virulent serum suffices to produce the disease when injected subcutaneously. The virus traverses the Chamberland filter-bougie F without dilution, but not the bougie B of the same system. This is in accord with the observation of Reed and his colleagues, who showed that the virus passes through Berkefeld filters. Hence the yellow-fever germ, whatever its nature, must be classed with the so-called invisible microorganisms. Heating the serum to 55 C. for five min-

1. Annales de l'Institute Pasteur, November, 1903.

utes renders it harmless, and the injection of heated serum produces a relative immunity which becomes complete on the additional injection of a small quantity of virulent serum. The serum of convalescents has distinct preventive and therapeutic properties. The French investigators confirm to the letter the assertions of Reed, Carroll and Agramonte that yellow fever is produced by the sting of *Stegomyia fasciata* infected by biting yellow-fever patients. During the first three days of the disease, the infected mosquito becomes dangerous at an interval of at least twelve days after sucking the virulent blood. As in Cuba so in the region of Rio Janeiro, no other mosquito but *Stegomyia fasciata* plays any part in the transmission of yellow fever, and as the disease under natural conditions does not appear to be transmissible in any other way, the prophylaxis of yellow fever rests wholly on measures that prevent *Stegomyia fasciata* from biting yellow-fever patients and healthy persons.

It is important to note further that *Stegomyia fasciata* is commonly inhabited by various parasites—molds, yeasts and protozoa—none of which, however, appears to have anything to do with the transmission of yellow fever. The French investigators studied this phase of the problem thoroughly, and their results seem to support the criticisms of Carroll[2] that the alleged discovery by Parker, Beyer and Pothier of the protozoan cause of yellow fever lacks foundation.

CREDIT DUE AMERICAN INVESTIGATORS.

Apropos to the above comments on the Report of the French Yellow-Fever Commission, we recall that a daily paper a few days ago commented in a somewhat disparaging manner on the fact that so far no American scientist or writer has been made the recipient of a Nobel prize. Thus it is stated that "it is strange that with all the facilities for original research this country now has they have not been utilized to better advantage." We believe that a knowledge of the work of Reed and his coworkers in yellow fever and of its far-reaching consequences is fully sufficient to convince any intelligent person of the injustice of this reflection on the achievements in recent years of scientific medicine in America. It is far from our intention to question the judgment and the fairness of the committee in charge of the distribution of the Nobel prizes—its members undoubtedly have difficulties of their own—but no one will dispute, for a moment, the title of the medical officers of the U. S. Army, led by the lamented Reed, to the fullest recognition and reward that it is within the power of human gratitude to give, for their work in solving the etiologic riddle of yellow fever. The untimely death of Walter Reed has placed him beyond the reach of personal reward at the hands of his fellowmen, but his achievements, though uncrowned by prizes and honors, always will remain one of the chief glories of American medicine.

2. THE JOURNAL, Nov. 28, 1903, p. 1341.

TAX ON AVOIRDUPOIS.

A Swedish municipality, it is said, has established a tax on its overweight citizens; all above normal weight must pay a graded tax according to their avoirdupois. Great weight will be a luxury in that community. It is said that the scheme is not for revenue, as might be supposed, but in the interest of good health and good morals and dietary reform. The reformers think that their people eat too much, and that both economy and health will be favored by the tax. Inasmuch as some poor people gain in weight not by drinking beer or by taking too much carbohydrates or otherwise, but suffer from an unfortunate peculiarity of metabolism, this tax seems a little unfair. Nevertheless, if those who suffer from adiposis dolorosa and similar diseases could be exempt from the tax, it might be a good thing. A little more exercise and work would not only bring down the extra avoirdupois, but would also add to the health of the individual.

THE GOSPEL OF DIRT AGAIN.

The newspapers at the present time are discussing[1] the utterances of an aberrant eclectic whose new gospel of dirt was noticed in THE JOURNAL on a former occasion. He has apparently still further emphasized his former opinions, and states the unfortunate results of bathing, illustrating it by the case of a poor Eskimo who came to this country and took a bath, dying almost immediately of pneumonia. The gentleman evidently does not know that Eskimos do bathe, and that while their methods of cleansing themselves are not very attractive, they are eminently effective, and the fact is that the Eskimo is as proof against pneumonia due to bathing as any white man who indulges in it habitually. It should be said in this connection that this gospel of dirt is being credited as having been given out before the Chicago Medical Society, a body which would certainly have repudiated the man and his opinions alike. It was not the Chicago Medical Society, but an eclectic society.

ILLEGAL ADVERTISEMENTS IN IOWA.

A Michigan law making revocable the license of any physician publishing illegitimate advertisements in the newspapers has been commented on already in THE JOURNAL. The law in Iowa would be still more effective if it were only enforced. In the *Iowa Medical Journal*, December 15, Dr. H. B. Young calls attention to Section 4954 of the Iowa statute, which reads: "Whoever prints or publishes, or causes to be printed or published, in any newspaper published or circulated in this state, any advertisement of medicine, drug, nostrum or apparatus for the cure of private or venereal disease, or shall circulate or distribute any newspaper containing such an advertisement or notice, shall be guilty of a misdemeanor, and shall be fined not more than $1,000 nor less than $50, or shall be imprisoned in the county jail not more than one year, or both." Under this statute Iowa ought to be free from objectionable advertisements of the character mentioned, but we fear that the law is very seldom enforced. It is unfortunate, moreover, that the statute does not cover other objectionable

1. In this connection see "Miscellany" in this issue, p. 47.

advertisements that are inserted in the newspapers that are just as evil in their origin and tendencies as those specified. It would probably not be difficult to have such added by amendment. Young suggests to the members of the medical profession that they do their part in aiding in the enforcement of the statute as it now exists. The editor of the *Iowa Medical Journal* says that the main thing necessary will be for the committee on public health and legislation in each county society to call the attention of the offending parties to this law, and to stimulate the county attorney, when necessary, to take action.

TECHNIC IN TREATMENT OF ALCOHOLISM.

There has always been a difference of opinion as to the proper management of delirum tremens, and even in the text-books there is a variety of recommendations as to the immediate or the gradual withdrawal of alcohol. In a recent paper[1] Dr. J. F. Kelly, assistant physician at the Cleveland State Hospital, states that the results of his experience indicate that the shutting off of alcohol at once is a dangerous procedure and that alcoholic drinks must be gradually reduced. The question whether delirium tremens is due to abstinence from alcohol is answered, he says, in a spirit of inquiry rather than of assertion in the affirmative. We are well aware that popular notions attribute delirium tremens to the sudden abstinence from alcohol in a habitual drinker, but medical opinion has rather been to the contrary. It is the general experience of the profession that delirium tremens is the result of a continued excess or exacerbation of the drinking habit. Cases that have been seen of the actual delirium tremens following sudden cessation of alcohol must at least have been rare in medical experience, still extreme nervous disturbances and actual maniacal attacks have been reported as the result of the sudden cessation of alcohol, but exceptional rather than as a rule. Dr. Kelly states that he has frequently seen patients in whom delirium tremens developed from sudden withdrawal of the alcoholic drink, while with gradual cessation of the alcohol no such symptoms were observed. It is not improbable that alcohol, like other poisons to which the system becomes to a degree habituated, causes a condition from which more or less disorder results when the customary stimulus is withdrawn; but the danger of such an event would appear to be rather less than after the sudden withdrawal of morphin. The question is worthy of further investigation. We may have to give qualified statements as to the advisability of cutting off alcoholic drinks, at least in some cases, but ultimate withdrawal is, of course, necessary. With the judicious use of nerve stimulants complete withdrawal may be the best in skilled hands.

THE ABANDONMENT OF THE WORLD'S CONGRESS OF MEDICINE.

We have received a copy of a pamphlet addressed to the medical profession of the United States and issued by the committee on organization of the World's Congress of Medicine which was to have been held in St. Louis in September, 1904, under the auspices of the Universal Exposition Company, in which is given a history of the creation of the committee, an account of the work done and the causes which led up to the resignation of the committee and the abandonment of the congress. The committee, consisting of Drs. W. E. Fischel, L. H. Laidley, F. J. Lutz, W. G. Moore and H. Tuholski, all of St. Louis, is deserving of the highest praise for the work it did, and commendation for resigning and giving up the congress when it found that it was to be subordinate to and dominated by the management of another congress, which had no direct interest in the success of the medical congress. The general plan of the proposed medical congress, as outlined by the committee, and on which an enormous amount of preliminary work had already been done, would have resulted in one essentially different from the international congresses as heretofore held. This is the principal reason why it is to be regretted that it could not be carried out. As we understand it, the main cause of the abandonment of the medical congress was that a Congress of Arts and Science had been arranged, which is to have departments covering practically all of medicine and surgery; consequently, a conflict might have been expected. Arrangements, however, were proposed by which the officers of the Congress of Arts and Science were to co-operate with those of the World's Congress of Medicine, the latter to be held a week later than the former; and all papers, etc., relating to medicine in the subdivisions of Department 15 and all of Department 18 of the Congress of Arts and Science were to be reserved for and transferred to the medical congress. It is a pity that this arrangement could not have been carried through. Meanwhile the national advisory council of the World's Congress of Medicine, a body created to aid the committee on organization and composed of representative medical men of the United States, at its last meeting passed a resolution in which it decided to co-operate in making the Congress of Arts and Science a success.

1. Cleveland Medical Journal, November.

Medical News.

COLORADO.

November Deaths.—During November 719 deaths were reported, an annual death-rate of 15.15 per 1,000. Diphtheria caused 15 deaths; scarlet fever 6, and typhoid fever 44.

Hospital Wing Soon Opened.—The new wing of St. Luke's Hospital, Denver, and the Katherine Hallett Home for Nurses are almost completed, and will soon be ready for dedication.

Diphtheria and Antitoxin.—For the six years before the discovery of antitoxin the mortality percentage of diphtheria in Denver was 36.4. For the eight years following its discovery the mortality percentage was 9.97.

Officers Elected.—The newly elected officers of the Otero County Medical Society are: Dr. James F. Kearns, La Junta, president; Dr. Carl Myer, Rocky Ford, vice-president; Dr. E. Gard Edwards, La Junta, secretary, and Dr. Albert L. Stubbs, La Junta, treasurer.

Morbidity.—During November, 100 cases of diphtheria, 151 of scarlet fever, 60 of smallpox and 321 of typhoid fever were reported; an increase of 50 cases of scarlet fever and 21 cases of smallpox, and a decrease of 5 cases of diphtheria and 121 cases of typhoid fever as compared with the previous month.

DELAWARE.

Tuberculosis Hospital Open.—The new tuberculosis hospital in connection with the Delaware State Hospital, Farnhurst, has been completed and is receiving patients.

Personal.—Dr. Peter A. M. Rovitti, Wilmington, has been re-elected physician for the Italian Mutual Beneficial Society, and

was also elected physician for the St. Anthony Mutual Beneficial Society, succeeding Dr. Henry W. Briggs.

Work of the Laboratory.—The director of the Pathological and Bacteriological Laboratory of the Delaware State Board of Health, Newark, reports that during July, August and September, 343 analyses and examinations were made.

Smallpox.—Two cases have occurred in the St. James Protectory at Reybold, both of which were, it is claimed, imported from Philadelphia. At Woodland 25 out of the population of 100 are said to be affected, and seven deaths have occurred.

ILLINOIS.

Wabash Hospital Open.—The new hospital erected by the Wabash Railway at Decatur has been completed at a cost of $60,000. The hospital is fully equipped and has accommodation for 50 patients.

Ordered to Refund.—Dr. Henry C. Neff, an itinerant specialist of Chicago, who contracted to cure a case of catarrh at Kankakee for $50 or refund the money, failed to accomplish the cure, and judgment for the amount was rendered against him by default.

Abjure Connection with Institution.—Of the 30 physicians of Freeport, 27 join in a public disclaimer of their connection with the so-called "City Physicians' Laboratory," whose establishment has recently been heralded through the daily press. They furthermore deprecate the methods used as likely to mislead the public, and to attract unbecoming attention to the profession.

Sanitary Investigation of Cities.—The State Board of Health has just concluded a sanitary investigation of seventy-five cities of Illinois, the public water supply of which has been subjected to a careful chemical and bacteriologic analysis. In the greater number of cities the water has been pronounced good. In those in which there was evidence of contamination in the water supply, the board has consulted with the local authorities in the endeavor to discover the cause of the pollution and suggest a remedy. Sanitary officers of the board have been sent to the majority of cities for the purpose of investigating unsanitary conditions and to advise the local authorities as to the steps necessary to prevent an outbreak of disease.

Chicago.

Thousand for Hospital.—By the will of the late B. Kuppenheimer $1,000 is devised to the Michael Reese Hospital.

Children's Department Open.—The Provident Hospital has opened a department for children, and has established a free clinic for children on Tuesdays and Fridays from 2 to 4 p. m.

Decrease in Mortality.—Contrary to the indications of the previous fortnight or so the week's death rate decreased from 15.20 per 1,000 in the week of December 19 to 14.21 in the Christmas week—a decrease of nearly 6.5 per cent. As compared with the corresponding week of last year, when the rate was 17.12 per 1,000, the decrease is almost 17 per cent. This result was wholly unlooked for in view of the character of the weather since Thanksgiving week, and it is still more remarkable when the pneumonia mortality is considered. The total 139 deaths from pneumonia are the highest for any December week on record. They form 27 per cent. of the total mortality from all causes, while the forty-nine deaths from consumption are less than one-tenth the total deaths of the week.

IOWA.

Elects Officers.—The Jasper County Medical Society met at Colfax, December 16, and elected Dr. Louis S. C. Turner, Colfax, president; Dr. F. LeMoyne Smith, Monroe, vice-president, and Dr. Harry P. Engle, Newton, secretary and treasurer.

Itinerant Sentenced.—W. C. B. Bullard, an itinerant medicine man of Des Moines, was found guilty of obtaining money from patients under false pretences, and was sentenced to imprisonment for 18 months in the state penitentiary at Anamosa, and to pay all costs.

Personal.—Dr. Ferdinand J. Smith, Alton, is to teach pathology in Drake University Medical School, and sails for Germany January 4. He will remain abroad until September.——Dr. Edward S. Bowman, Davenport, has resigned as physician of Scott County.——Dr. James McCartney, Davenport, after living half a century in Davenport, has decided to move to Chicago.——Dr. Charles L. Barewald, Buffalo, has been elected county physician of Scott County.

Demand Revision of Laws.—At the recent quarterly meeting of the State Board of Health, a revision of the laws relating to the medical profession was recommended in the following three particulars:

The creation of a special bacteriologic department, which shall have an appropriation of at least $5,000 a year.

Power to act in all cases where it is believed there is danger in an epidemic or disease, even when there has been no outbreak.

Power to accept the certificates of physicians from other states that exact the same preliminary training and subsequent examination as Iowa.

KENTUCKY.

Hospital Dedicated.—The dedicatory exercises of the Jewish Free Hospital, Louisville, were held, December 19, with impressive ceremony.

Smallpox.—Richmond and Madison Counties are said to be in the grip of an epidemic. At present there are 14 cases.——The school at Quick's Run has been closed on account of the disease.——Hart County reports an epidemic of a mild form of the disease.

Personal.—Dr. Joseph M. Mathews, Louisville, has been awarded $200 damages against the Louisville Railway Company for injuries received some time ago.——Dr. Thomas Morgan, Lexington, has been appointed to the chair of experimental zoology in Columbia University, New York.

Elections.—Fayette County Medical Society held its annual election in Lexington, December 15, with the following result: President, Dr. N. Lewis Bosworth; vice-president, Dr. Nathan R. Simmons; treasurer, Dr. James W. Wilson; secretary, Dr. Daniel J. Healy; censor, Dr. Porter Prather, and delegate, Dr. Thomas H. Kinnaird, all of Lexington.——Jefferson County Medical Society, at its regular meeting, December 15, elected the following officers: President, Dr. H. Horace Grant, Louisville; vice-president, Dr. Joseph Hopson, St. Matthews; secretary, Dr. Henry Enos Tuley, Louisville, and treasurer, Dr. Sidney J. Meyers, Louisville.

MARYLAND.

Medical Staff Appointed.—The following have been elected to the executive committee of the medical staff of the Annapolis Emergency Hospital: Dr. George Wells, chairman; Dr. William S. Welch, secretary; Drs. J. J. Murphy and Charles B. Henkel.

Where Rush Was Taught.—The annual banquet of alumni of West Nottingham Academy, Cecil County, was held December 18. It was at this academy that Benjamin Rush received his academic training. It was established in 1741 by Samuel Patton, afterward president of Princeton College, and has had 162 years of continuous existence.

Baltimore.

Deaths of the Week.—There were 199 deaths last week, an annual rate of 18.83 per 1,000. Among the chief causes were pneumonia, 29; heart disease, 21; consumption, 19; Bright's disease, 17; cancer and diphtheria each 6, and typhoid fever, 4.

Pollution of Water Supply.—There are about 500 cases of pollution on the watersheds of the city's water supply known to the water department. The city solicitor is waging strenuous war on these, especially about 100 due to dwellings. Suit has been instituted already in test cases.

The Herter Lectures.—Prof. Paul Ehrlich, director of the Institute for Experimental Therapeutics, established by the German government at Frankfort-on-the-Main, has been selected to deliver the first Herter lectures at the Johns Hopkins Medical School. These lectures are designed to promote a more intimate knowledge of the researches of foreign investigators in medical science. The lectures will be in German and will be given in April. The subject will probably be "Researches on Immunity."

An Embryo University.—An arrangement has been effected by which the Baltimore Medical College and the Baltimore Law School are affiliated. After the end of the present session the latter will occupy apartments in the building of the former. It is said that the two institutions contemplate consolidation under a university charter. The medical school was founded in 1880, and is operated in connection with the Maryland General Hospital and a dental school. The law school was founded in 1900. Both have good faculties and large classes.

Sewerage Bill.—The sewerage bill approved by the mayor and board of estimates provides for a $10,000,000 loan, to be ratified by the people. The sewer system is to be built by an unpaid commission (except the chairman, who receives $5,000 annually) to be appointed by the mayor, of three republicans and three democrats, with the mayor ex-officio a member. The appointments are to be confirmed by the second branch city council and meetings of the commission are to be public. The

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commission has power to condemn land, construct the system and require private corporations now using the streets to shift their conduits to make way for the sewers. The work is to be done by contract. House sewage is not to be discharged into the Chesapeake or its tributaries. Buildings are to be connected with the system at the expense of owners and under supervision of the commissioner of health. As soon as the system is ready to relieve 300 buildings, a system of annual sewerage rates is to be established by the mayor and city council.

MASSACHUSETTS.

Nurses' Home.—Medfield Hospital is to have a new nurses' ward two and three stories high, 180 by 140 feet.

Health Laws.—The State Board of Health has issued a manual containing all the laws of Massachusetts in regard to health and the decisions made by the Supreme Court relative thereto.

Diphtheria Epidemic Denied.—Much has been made in the public press of the prevalence of diphtheria at Harvard. A prompt denial of any danger has been issued by the dean, who suggests the newspaper source of the scare.

Suggested Appropriations.—The Massachusetts state auditor suggests the following appropriations to the legislature for the coming year: State Board of Charity, $532,600; Board of Registration in Medicine, $6,850; Cattle Bureau of the Board of Agriculture, in order to avoid releasing tuberculous cows, $100,000, and School for Feeble Minded, $66,248.

Money to Hospitals.—The will of the late George W. Boyd leaves $12,500 to Maine General Hospital, Portland, Me.; $5,000 to the Memorial Hospital for Women and Children, Brooklyn, N. Y.; $5,000 to the Children's Hospital, Boston, $1,000 to the Cullis Consumptives Home, Boston, and a reversionary interest of $25,000 to the Massachusetts General Hospital.

Athletes at Harvard.—Dr. George L. Meylan, Columbia, in a paper read before the Boston Physical Education Society on "A Study of Harvard University Oarsmen from 1852 to 1892, Inclusive," finds no harm has resulted to the men from the violence of their training or exercise. They average 7½ years longer life than normal, are more apt to marry, and have larger families than the average Harvard men. Moreover, there are more than the average number of "prominent Americans" included in the 152 men thus studied.

OHIO.

Medical Corps Reorganized.—The adjutant general has issued an order for the reorganization of the entire medical department of the militia to conform with the usages and regulations of the United States Army.

Medical Library for Toledo.—A medical library has been started in Toledo with cash subscriptions of $200, and a collection of about 2,000 volumes. Rooms have been rented in the residence of the late Dr. George A. Collamore, and Mrs. Collamore is expected to serve as librarian.

Smallpox.—The prevalence of the disease at Washingtonville is causing alarm, as there are now 10 cases, and as less than one-half of the school children have been vaccinated.——Gallia County reports several deaths. Two cottages at the Ohio Hospital for Epileptics have been quarantined.——In the west end of Washington County 18 cases have developed during the last few days.

Under New Management.—The *Cincinnati Lancet-Clinic*, which has been under the editorial management of Dr. J. C. Culbertson for the past thirty years, will, with the issue of Jan. 2, 1904, present many changes. Dr. Culbertson, while retaining his financial interest in the journal, will retire from active work. Dr. Mark A. Brown will be editor-in-chief and Dr. Frank B. Cross, business manager. Dr. Brown will have associated with him a large corps of associate editors in the various specialities, comprising some of the best-known physicians of Cincinnati. With so capable an editor-in-chief, and so distinguished a staff, the *Lancet-Clinic* should press forward to new scientific and journalistic success.

PENNSYLVANIA.

Tuberculosis Hospital.—The Department of Charities of Pittsburg has asked for an appropriation of $50,000 to build a hospital for the tuberculous.

Typhoid in Pittsburg.—There is a large number of cases of typhoid fever in Pittsburg. For the period of the month ended December 14, 283 cases were reported. Ninety per cent. of the patients are said to be of those who drink water from the Allegheny River.

New Hospitals.—The Mount Pleasant Memorial Hospital, a four-story structure, with a capacity of 40 beds, has recently been opened.——The new hospital at Uniontown, erected at a cost of $100,000, has been formally opened. This institution will accommodate about 100 patients and has 14 private rooms.

Not Violence, But Diphtheria.—A 15-year-old girl, of Philadelphia, died, December 15, at the Pennsylvania Training School for Feeble-Minded Children. An accusation by the father that the child had been violently treated led to an inquest by the coroner of Delaware County. A death certificate of heart disease had been issued. The coroner's jury, however, rendered a verdict of death from diphtheria. The board of managers of the school will investigate the case.

Philadelphia.

Bequests.—By the will of the late Salena Walker, the Jewish Hospital Association and the Jewish Maternity each received a a bequest of $8,000.

Degrees Conferred.—On December 10 the University of Pennsylvania conferred the degree of doctor of medicine on eleven students who had finished their course ahead of time.

Phipps in Philadelphia.—Henry Phipps, the philanthropist, visited Philadelphia, December 14, and, in company with the director, Dr. Lawrence F. Flick, inspected the temporary quarters of the Phipps Institute of Tuberculosis.

New Laboratory Soon Ready.—The new medical laboratory of the University of Pennsylvania, costing about $500,000, is expected to be ready for use next month. The building, begun about two years ago, has been delayed by several strikes of workmen.

Deaths of the Week.—The deaths in Philadelphia from all causes within the week numbered 579, an increase of 83 over the last week and an increase of 44 over the corresponding period of last year. The increase is believed to be largely due to the cold weather.

Will Give Portrait.—The former resident physicians of the Pennsylvania Hospital are having prepared an oil painting of the late Dr. Thomas G. Morton, which is soon to be hung in that institution. The committee in charge of the portrait consists of Drs. T. Hollingsworth Andrews, James C. Wilson and Frank Woodbury.

Physician Loses Feet.—Dr. George I. MacLeod of Ardmore, on December 16, in attempting to board a train for Philadelphia, slipped and fell beneath the moving train, and had both legs crushed. Amputation of both feet was necessitated. The patient is in good condition. Dr. McLeod is a member of the staff of the Bryn Mawr Hospital.

Wyman Lectures.—On the invitation of the H. A. Hare (Undergraduate) Medical Society, Surgeon-General Walter Wyman, of the U. S. P. H. and M.-H. Service, on December 16, addressed the students of the Jefferson Medical College on "Advantages Offered by the Public Health and Marine-Hospital Service of the United States to Recent Graduates in Medicine."

More Medical Inspectors.—Councils' subcommittee on finance has recommended an increased number of medical inspectors. According to the plan there are to be 50 salaried inspectors, assisted by 20 nurses, who are to do the work now done by 90 district physicians, medical inspectors and vaccine physicians. The new plan will simplify the work and will enable a daily inspection of schools to be carried out. The salaries of the inspectors are to be $1,200 a year, and that of the nurses $720 a year.

Smallpox.—For the week ended December 19 there were 90 new cases of smallpox and 22 deaths, the latter being more than for any like period within two years. Dr. Martin, director of the Department of Health and Charities, has sent the following letter to the physicians of the city, dated December 19:

> The conditions in Philadelphia are such as to threaten a grave epidemic of smallpox. Can you help in the preventive work by urging on your patients and all members of their households immediate vaccination of all unvaccinated persons, of all children over 12 who have been vaccinated successfully in infancy, of all adults who have not been vaccinated successfully within the last five years.

GENERAL.

Echinacea.—According to L. E. Sayer, dean of the School of Pharmacy of the University of Kansas, writing in *The Journal of the Kansas Medical Society*, there is such a large and increasing demand for *Echinacea angustifolia* (the common "black Susan" or "niggerhead" of the western roadside and field corner) that there is danger of the supply for medicinal use being exhausted. The Bureau of Plant Industry of the

Department of Agriculture will take steps next season for the cultivation of the plant.

American Congress on Tuberculosis.—The Council of the Indiana State Medical Association, at its meeting in Indianapolis, December 17, adopted the following resolutions:

Resolved, That the Council of the Indiana State Medical Association, representing the medical profession of Indiana, believing that the so-called American Congress on Tuberculosis, organized by Clark Bell, Esq., of New York is not a body which is representative of the medical profession or of the best scientific thought of this country, deems it inadvisable and inexpedient for the Indiana State Medical Association to be represented in said Congress, and that we advise our President to notify Mr. Bell that he declines to appoint delegates to it.

Resolved, That the Secretary of the Council be instructed to furnish a copy of this resolution to the medical press, to Hon. John Hay, Secretary of State at Washington, who has been specially importuned to lend official aid and support to the movement.

Physicians Wanted for Philippine Service.—The United States Civil Service Commission announces that on Jan. 27-28, 1904, an examination will be held at 183 cities throughout the United States to secure physicians for the Philippine Service at salaries ranging from $1,200 to $1,800 per annum. At least one year's experience in hospital work or in the Philippine Islands as assistant surgeon in the United States Army, is prerequisite. The age limit is 20 to 40 years. This examination is open to all citizens of the United States who comply with the requirements. The Philippine Service is classified, and the law contemplates promotions on the basis of merit from the lowest to the highest positions. The climate is good and nearly all of the employes are in excellent health. For circulars, giving cost of living, duties, places of examination, etc., address the commission at Washington, D. C.

St. Louis Exposition—The Congress of Arts and Science.—A congress of scientific men to be called The Congress of Arts and Science is to be held in St. Louis, Sept. 19 to 25, 1904. This congress is supposed to cover all the sciences, classified into twenty-five departments, each department including several divisions. It was decided to invite a foreign representative of each subdivision to be present and take part. During the summer a committee was in Europe to personally extend the invitations. As a result we understand that about one hundred and twenty distinguished foreigners have accepted. Among these are M. Henri Becquerel, Paris (Physics of the Electron), J. H. van't Hoff, Berlin (Physical Chemistry), Albrecht Kossel, Heidelberg (Physiological Chemistry), Wilhelm Waldeyer, Berlin (Human Anatomy), Theodor W. Engelmann, Berlin (Physiology), Wilhelm Erb, Heidelberg (Neurology), Felix Marchand, Leipzig (Pathology), G. Clifford Allbutt, Cambridge (Internal Medicine), Professor Richelot, Paris (Gynecology), Sir Felix Semon, London (Otology and Laryngology), Sir Lauder Brunton, London (Therapeutics), Major F. W. Ross, Liverpool (Tropical Medicine) and Theodor Escherisch, Vienna (Pediatrics). Each of these, we understand, will be given an honorarium. As the program shows, Monday and Tuesday will be devoted to sessions of the larger divisions, and then the congress will break up into sections. These will be so arranged that, although some fifteen will be in session at once, or thirty in the morning and afternoon of each day, the sections of a department or of related departments will be arranged in series during the last four days in such manner that nearly everybody will be able to attend the sections up to the number of twelve in which any given individual might be supposed to be interested.

Health Officers' School.—A school for Indiana's health officers was held in Indianapolis, December 16-17, under the auspices of the State Board of Health. Under the Health Law of Indiana the State Board of Health is supreme and has power at any time to summon health officers in conference on hygiene and all subjects pertaining to the public health. The expenses of the officers are paid by their respective boards, but no per diem is allowed, as the officers are paid so much per capita per annum for each inhabitant of his jurisdiction. The school was called to order at 9 a. m. December 16 by Dr. W. N. Wishard, president of the State Board of Health. The first paper was given by County Health Officer A. S. Tilford on "The Importance and Usefulness of Vital Statistics." This valuable paper drew forth many questions and considerable discussion. There followed a lesson by Dr. J. N. Hurty, secretary of the board, entitled "Instructions for Collection of Vital Statistics; Instructions in Quarantine, and in the General Duties of Town Health Officers." A special "Book of Instructions to County, City and Town Health Officers" was recently issued by the State Board of Health, and this book was for the first time distributed among those present, about 200 in number. Health boards in Indiana have extraordinary powers, for the Supreme Court has decided that "boards of health are empowered to do whatever is reasonable for the preservation of the public health and the suppression of epidemics." All health officers are empowered and commanded on their own judgment to establish quarantine, employ physicians, purchase supplies, destroy infected articles, establish pesthouses, etc. The State Board of Health is empowered to take charge of any city, town, county or locality wherein the health laws are not being enforced. All of these facts in regard to the duties and powers of health officers, were carefully set forth and explained by the lecturer.

Two lessons in hygiene were given by Prof. Severance Burrage, professor of hygiene in Purdue University. His first subject was "School Sanitation and the Necessity of Medical Inspection of School Children," and his second, "The Town Milk and General Food Supply." Ex-Attorney-General William L. Taylor gave a lucid and comprehensive exposition of the present health and medical laws of Indiana, and made suggestions as to the legislation on those subjects that are still needed. Mr. Taylor was selected for this work because of his peculiar fitness, he having written the greater part of the health and medical laws of the state, while attorney-general, and having done good work in securing their passage. Surgeon-General Sternberg was one of the teachers, and his first lesson was given under the title of "Prevention of Infectious Diseases." In giving this lesson General Sternberg went carefully into the technical details, with which the health officer should be thoroughly acquainted. Dr. Frank Allport of Chicago gave a lesson entitled "Examination of School Children's Eyes and Ears." Dr. Allport dwelt fully on the importance of the subject and gave a clinic, examining the eyes of children before the assembled audience, to illustrate what a simple matter it was for teachers to be able to discover whether or not sight and hearing in their pupils were normal. Dr. Allport's address is spoken of as one of the most important given during the school, being exceedingly practical, and it certainly will bear fruit in Indiana, as the state board has already decided to order the examination of school children's eyes and ears by the teachers, and to use the methods advocated by Dr. Allport.

Dr. C. O. Probst, secretary of the Ohio State Board of Health, gave a lecture entitled, "The Combat Against Tuberculosis." This lesson was confined largely to telling in detail the part which health officers should take in the great work of the prophylaxis of tuberculosis. Prof. Stanley Coulter, professor of botany, Purdue University, gave a lesson entitled, "Influence of Plant Life on the Public Health." This was a very brilliant address by one of the foremost botanists of the United States. He made plain how the earth would speedily become uninhabitable if plant life was not present to unceasingly purify the atmosphere, to conserve humidity, furnish food, etc. Professor Coulter will prepare a pamphlet on this subject which will be circulated by the Indiana State Board of Health.

Surgeon-General Wyman, who had promised to be present, could not attend, being kept away by the pressing duties of his office. Probably the most notable lesson was given by Prof. F. G. Novy, M.D., of the University of Michigan. His title was "The Protozoal Diseases." It would seem impossible for any one except Professor Novy to give even an abstract of the matter which he presented to the school. The authorities of the Medical College of Indiana prevailed on Dr. Novy to remain over and address the students of their institution the next day.

To the evening session of the school, on December 16, the public was invited. The auditorium, seating 1,200, was full to the doors. The lectures of the evening were given by Dr. David W. Dennis, professor of biology in Earlham College, and by Surgeon-General Sternberg. Both lectures were illustrated with lantern. The first was entitled "The Germ Theory of Disease," and the second "Infection and Immunity."

The medical profession and other citizens of Indianapolis and of the state extended to General Sternberg, Dr. Novy, Dr. Allport and Dr. Probst a dinner on the evening of December 17, at which Governor Durbin acted as toastmaster and Mayor Holtzman extended welcome to the visitors.

FOREIGN.

The Deadly Celluloid Collar.—The *Progrès Médical* of Paris states that a French practitioner, Dr. Runel, succumbed in twenty-four hours to the effects of burns received from the igniting of a celluloid collar while he was lighting a cigar.

Medal for Ehrlich.—Professor Ehrlich, the director of the Institute for Experimental Therapeutics at Frankfurt a. M., has been presented with the gold medal "for arts and sciences." A similar medal was bestowed on Virchow on his eightieth birthday.

French Medicine at the St. Louis Exposition.—Dr. Marcel Baudouin, editor of the *Gazette Méd. de Paris*, has been appointed chairman of the committee that will represent French medicine at the approaching exposition. He is making great efforts to have the profession in his country well represented, not only by surgical appliances, etc., but also by a large contingent of visiting French physicians.

Russian Tuberculosis Congress.—The national medical association of Russia appointed a permanent committee last year to study means of combating the spread of tuberculosis. The committee has now appealed for a general conference on the subject, and has been entrusted with the task of organizing an All-Russian Tuberculosis Congress to convene in connection with the next national medical congress.

Substitution of Infants.—A Polish noble family has recently been before the courts on account of the accused substitution by the wife of an infant heir. The matter was referred by the court to the expert testimony of two physicians and an artist, who were required to testify as to the inheritance by the infant of the physical characteristics of the mother to sustain her claims of maternity. The experts discovered likeness in the ears, root of the nose and color of the eyes, and noted a striking resemblance between the infant's chin and the chins of the countess' daughters, although differing from her own chin. On the ground of this testimony the mother's claim was allowed and the suit dismissed. The trio of Berlin experts included Dr. Strassmann and Vogel, the portrait painter.

Celebration of Koch's Sixtieth Birthday.—Robert Koch is not expected home from British South Africa until March, but his friends seized the occasion of his sixtieth birthday, December 11, to honor him. A portrait bust installed in the Institute for Infectious Diseases, will be unveiled on his return, and a museum has been organized there to represent the evolution of bacteriology. A *Festschrift* with contributions from his immediate pupils is now in press, and all the German medical journals devoted a special number to his honor. The *Deutsche medicinische Wochenschrift* states that the preparations for the celebration have been made without publicity as the sixtieth birthday of even such a man as Koch scarcely justifies a public celebration, but adds the mysterious hint that "it may be allowable later to speak of the primary inducement for this more extensive celebration of the birthday." This weekly has always been the medium through which Koch has published his communications, and it gives a list of 22 since his criticism of Naegeli's work in 1877.

PARIS LETTER.

Protection of Children from Tuberculosis.

The establishment of sanatoria for consumptives in France has not taken place without some discussion as to whether it be the best means of stamping out tuberculosis. Professor Grancher considers that prevention is of more importance, and advocates using all methods which tend to protect children from this disease. He considers the English method far preferable, the latter consisting in ameliorating the hygienic conditions of workmen in furnishing more light and air, and better food. A society has been formed under his inspiration, which aims to protect children from tuberculosis. Children of the poor whose parents are affected with consumption will be sent into the country, after having been examined to see if there is any apparent trace of consumption. It is considered best not to send tuberculous children among families residing in the country who would not know how to protect themselves. The family of the child will be asked to contribute in some slight degree to the maintenance of the child. The sum given for this purpose may be only two or five francs per month, but it will prevent pauperizing the family. Children whose ages range from 5 to 13 will be chosen.

Correspondence.

Trades Unionism Among Asylum Employes.

DUNNING, Ill., Dec. 23, 1903.

To the Editor:—I presume it is well known, from the notices that have appeared in the daily press of Chicago, that there is established at Dunning a union of attendants and nurses, organized on the same basis as regular labor organizations and affiliated with the Chicago Federation of Labor. It is also a well-known fact that the attendants and nurses, as well as other employes at Dunning, are under the protection of civil service, the protection being so strong as to absolutely prevent me from either hiring or discharging an employe.

The attendants have made a demand for a uniform scale of wages, much higher than the present one, and in spite of the fact that the average pay allowed to attendants and nurses at Dunning is now somewhat higher than the average in the state institutions in Illinois, and in fact higher than the average for the United States. I am not opposed to an increase in the wages, and quite agree with Mr. Sullivan, the attorney for the union, that for a better salary we would be able to secure a better grade of attendants. I do, however, very decidedly disagree with the demands of the union on the question of the uniformity of wages, and this is the question which I desire to place before the medical profession through the medium of THE JOURNAL. The points which I desire to establish and which in my opinion are absolutely essential for the maintenance of discipline in an institution of this kind, as well as for the obtaining of the highest possible efficiency from the attendants and nurses, are the following:

1. While I have absolutely no objection to an association of attendants and nurses and can easily see how such an association could be of immense service to its members as well as to the institution, particularly to the patients, I can not see the wisdom of having a regular labor union in a charitable institution. I maintain that if it is undesirable to have a union of firemen and policemen, it certainly is less desirable to have a union of attendants and nurses and there is much less just reason for its existence, especially when we consider that it exists in civil service protection.

2. I assert that the work is in no way uniform. The skillful nursing of the sick and the care of the demented, helpless and untidy patients surely deserves higher compensation than the watching of a few working patients out in the field, where about the only duty is to prevent the patients from escaping or overworking.

3. What is most important, the uniform scale of wages would undoubtedly decrease the efficiency of the great majority of attendants. Such is the opinion of over fifty superintendents of leading American institutions of a similar nature, and such has already been my experience. It is proper to consider an expectation of higher pay and higher position a natural stimulus for work. If the question of pay is absolutely settled and there is no chance for any better, and on the other hand no danger of any worse, why should anyone care to improve in his work and to receive any training? The only thing desired under such circumstances is work enough to prevent discharge. You will agree with me that under such circumstances the work in an institution of this kind certainly can not be elevated nor the care of patients be bettered.

4. The discipline of the place under such circumstances can be easily imagined. As it is, the civil service rules limit the power of the superintendent. If, aside from that, he has no right to make some distinction in salary for better services rendered, the superintendent will become a mere figurehead.

To illustrate the situation in state institutions of Illinois, I will cite the system existing at the Illinois Eastern Hospital for the Insane, which was put in operation by Dr. Dewey and which has been continued practically the same ever since. The male attendants are placed in eight different grades, from $25 up to $40 per month. The average pay for male attendants, including several who have received training equal to that of a trained nurse, is $28.87. At Dunning, where none of the older employes had any training whatever, the average is now $30.60 per month. The female attendants at Kankakee are placed in eleven different grades, starting at $17 per month up to $35 per month, and practically every position paid better than $22 per month is held by a nurse who has received training and diploma from a training school. That makes an average of $20.19 per month for each female attendant. The average at Dunning is $28.80 per month. My schedule, as presented in the estimate, provides for an average for attendants of both sexes amounting to about $32.

In closing I wish to add that the training school has already been organized at Dunning and a course of training started, and while the interest taken in the classes and the result of the quizzes is extremely poor, the training will surely be of consid-

erable benefit to the institution as well as to each attendant who takes interest in it. It is my object to give a sufficiently thorough course of training in the second year to be able to train our own nurses for the positions of head nurses and all superior positions.

I am certain, however, that with uniform scale of wages no such results can be expected and the institution will drift along way behind the times, simply because of lack of efficiency in the force of attendants and nurses.

V. H. PODSTATA, M.D.,
General Superintendent Cook County Institutions.

"Congresses on Tuberculosis."

NEW YORK CITY, Dec. 14, 1903.

To the Editor:— . . . The American Congress on Tuberculosis was founded by the Medicolegal Society in 1900, and has held its annual meetings and elected its officers each year since that time at the City of New York. This congress is not, nor was it ever, for a moment, considered as a strictly medical organization. It was composed of legal and medical men, scientists, and publicists, because the medical profession, as such, in this country failed to organize such a congress, although all the leading powers of christendom had moved and acted. Sweden, Italy, Germany, France and England had done so.

The Medicolegal Society, because of the inaction of the medical profession of America, considered that if consumption was a communicable disease, as their medical members believed and advised, that the highest questions in forensic medicine ever submitted to the two great professions of law and medicine were:

(1) "What legislation could be adopted by Congress or by the legislatures of the American states that could possibly arrest its ravages, prevent its spread, and reduce the mortality among our people that had reached such alarming and amazing proportions?" as the first question, and,

(2) "How could the masses of our people be educated up to be willing to vote for and aid in securing such legislation as a commencement; and to form and place on solid foundations a public opinion in America, among all classes of our people, that could be relied on to enforce such laws, after they were enacted?"

The Medicolegal Society then considered that, because of the exigencies of the questions, the supineness and inactivity of the medical profession in our country to grapple with the subject, it became an urgent, an immediate and the paramount duty of lawyers, jurists, medical men, scientists, legislators and the general public in such a struggle to inquire into all sides and phases of this question. . . .

If the medical profession had in 1900 organized a national movement or congress on tuberculosis, as that profession had done in almost all continental countries, it would have been a creditable work, and . . . it is only fair to say that the present congress would not have been organized.

If the medical profession should to-day, through its great national organizations, decide to call and hold a medical congress on tuberculosis, either on broad or restricted lines of labor, as to the medical questions involved, or on larger and broader lines, it would be a creditable work, and every member of this organization would aid it in every way. . . .

As this Congress is not a medical congress, *per se*, and as men of all professions are on its list of officers and members, its faults ought not to, nor could they ever, be laid at the door of the medical profession.

(Signed) CLARK BELL,
Chairman Committee on Organization,
International Congress on Tuberculosis.

[Because of lack of space for them, we have omitted from Mr. Bell's very long letter a number of paragraphs, some of which are a repetition of a considerable part of the letter from the Government (which has already appeared in THE JOURNAL, December 12). We print the above portions, which are pertinent to the matter discussed. Mr. Bell discusses the Lewis-Brown Congress, which discussion we omit, as we do not wish to enter into the controversy between the two congresses. We note that Mr. Bell relieves the medical profession from responsibility of any sort for the congress, and it is well for physicians to know this fact.—ED.]

The First Hip-Joint Amputation in America.

WINFIELD, ARK., Dec. 18, 1903.

To the Editor:—In THE JOURNAL, December 5, page 1379, in his address on "The Progress of American Medicine," etc., Dr. W. W. Grant of Denver, speaking of great surgical operations of the past, gives the late Dr. V. Matt the credit of the first "hip-joint amputation" in America, in 1824. This is not correct, as we find, on pages 4 and 5 of Dr. P. S. Townsend's preface to volume III of Velpeau's Operative Surgery, 1847, that he gives Dr. Walter Brasher of Bardstown, Ky., the credit of the first hip-joint amputation, which was performed in August, 1806. In 1891, this question was discussed by Dr. Will F. Arnold of the U. S. N. and myself, and our communications were published in the *Medical Record*. In one number of that journal I had a copy of Dr. Brasher's letter to Dr. Townsend published.

Dr. Wyeth of New York, in the third edition of his "Text-Book of Surgery," page 218, gives Dr. Brasher credit for the first operation of the kind in America, and cites Dr. Yandell of Kentucky as authority. Dr. Eve, in his "Surgical Cases," gives the proper author of the operation, as Townsend did.

I write this simply to place the credit on the right man, and on the right date. CHEVES BEVILL.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

DIFFERENTIAL DIAGNOSIS OF TYPHOID FROM MEASLES AND RHEUMATISM.

RIDGELAND, WIS., Dec. 25, 1903.

To the Editor:—CASE 1.—A patient, 4½ years old, came down with a high fever and aches and pains all over her body. She had been exposed to measles. By the end of the first week her temperature was 104. At this time also there was pain in her abdomen and it was also tympanitic and covered with roseola. Her bowel movements were like pea soup and there was some blood. Spleen was enlarged. She gradually grew better until the end of the second week, when her temperature was 100. During the second week there was also bronchitis. Beginning with the third week there was a rise of temperature and the second day she broke out with measles. She then rapidly recovered. I diagnosed the case typhoid fever. Was I right or was it measles? She had two good sweats at the first.

CASE 2.—A woman, 38 years old, after three days of being unwell and having a very sore throat, came down with pain and swelling in her joints, mostly in wrists and elbows, ankles and knees; there was much vomiting and there was enlargement of spleen; temperature was from 100 to 101; there also was a marked roseola on abdomen. Tongue covered with white coating, breath bad. She was constipated, but there was no sweating. I diagnosed the case rheumatic fever. I opened the bowels with colchicin, and just at this time another physician was called, who pronounced it typhoid fever. Under typhoid treatment her temperature would run up to 101, while under rheumatism treatment her temperature would remain at 99.6. She finally recovered with stiffness in the joints. who was right? ——— C. C.

ANSWER.—CASE 1.—There are two or three possibilities in this case. (A) The patient had typhoid which was followed by measles. The early fever, abdominal symptoms, roseola, stools, splenic tumor, hemorrhage from the bowels, etc., speak as strongly for typhoid as any symptoms could, in the absence of a Widal test. (B) In some cases, in young children at this age, the typhoid spots, usually small, few and confined to the trunk, may come out very diffusely, abundantly and with unusual distribution, as over the face, arms, hands, etc. These cases may resemble measles, and careful observers have recorded such cases, although relatively infrequent. We have seen typhoid in which the diagnosis of measles was made. The Widal test, finding the typhoid bacilli in the blood and urine, etc., removed all doubt of the diagnosis. Your case was, then, in all probability typhoid with, as an equal choice, measles as a sequel or an unusually abundant typhoid eruption.

(c) It is barely possible that the prodromal fever of two weeks was part of the measles incubation. This seems, however, by far the least probable explanation.

CASE 2.—Your second case seems to have been rheumatic. There was an initial sore throat, then joint involvement, vomiting (unusual in typhoid), splenic tumor, which is not infrequent in acute rheumatism, a lower fever than usually occurs in typhoid, and, above all, the success of the almost specific antirheumatic treatment.

PARATYPHOID SYMPTOMS AND PATHOLOGY.

NASHVILLE, TENN., Dec. 14, 1903.

To the Editor:—Please state in THE JOURNAL the postmortem findings of the disease produced by the paratyphoid bacillus, also the symptoms and in what respect they differ from typhoid.

W. L.

ANSWER.—The symptoms of paratyphoid fever are practically indistinguishable from those of typhoid. Usually the course is similar to that of a rather mild typhoid, and the mortality seems to be low. Bowel disturbance is usually less marked, but may be present, and hemorrhages occasionally occur. Rose spots, enlarged spleen and dicrotic pulse are present to about the same extent as in typhoid. The diagnosis is to be made by the failure of the Widal in dilutions above 1-20, which is suggestive, and the isolation of the paratyphoid bacillus from the blood, which is the only positive method. In the few recorded autopsies the disease differs from typhoid in absence of swelling of the Peyer's patches and lymphatic apparatus of the intestine, although in a few superficial intestinal ulcerations have been found. The anatomic picture is rather that of a non-specific septicemia.

FIRST USE OF CLINICAL THERMOMETER.

JET, OKLA., Dec. 26, 1903.

To the Editor:—Will you please inform me through your columns when and by whom the thermometer was first used for the purpose of determining the temperature of the body? L. J. MOORMAN.

ANSWER.—The medical use of the thermometer apparently dates back almost to its invention. Park refers to Rantoro or Sanctorius (1561-1635), professor at Padua, who taught how to study the temperature by means of a species of thermometer, probably of his own invention. As Galileo (1574-1642) is credited with the invention of the spirit thermometer, it will be seen that the medical idea of an instrument of precision for determining the temperature dates back fully to his time. Mercuric thermometers were not invented until a later date. The clinical thermometer as we now use it is, of course, a modern invention.

PHARMACOLOGY TEXT-BOOKS.

LAMONT, FLA., Dec. 21, 1903.

To the Editor:—Will you kindly inform me through THE JOURNAL which is the best book printed in either English, French or German on the subject of Pharmacology, and where I can obtain it?

A. E. CONTER.

ANSWER.—There is no better English work than Sollmann's. Cushny's is also good. Order from W. T. Keener & Co., Chicago, or L. S. Mathews & Co., St. Louis, or have your nearest book dealer do so.

THE SUBMERGED TONSIL.

FORT YELLOWSTONE, WYO., Dec. 14, 1903.

To the Editor:—Will you please inform me what is meant by the phrase "Submerged Tonsils"? One of my patients was under the care of an eminent nose and throat specialist, who said she had submerged tonsils. J. V. WHITE,

Contract Surgeon, U. S. A.

ANSWER.—The term "submerged tonsil" has been used by some laryngologists to describe the gland when it is small, flat and elongated and partially covered by the faucial pillars to which it is sometimes adherent. The adjective has not received recognition.

Marriages.

L. EDWIN YOUNG, M.D., Massack, Ky., to Miss MAE CHOLSON, December 25.

JOHN R. WILSON, M.D., to Miss May Scott, both of Prairie Creek, Ind., December 8.

GRANT G. BROWN, M.D., to Miss Lutie Bowen, both of Atchison, Kan., December 23.

LORIN F. RICH, M.D., Rexburg, Idaho, to Miss Ruth Blair of Salt Lake City, December 23.

J. E. WILSON, M.D., Terrell, Texas, to Miss Johnnie Mae Blain of Dallas, Texas, December 9.

ROBERT T. LEGGE, M.D., to Miss Irene Farjeon, both of St. Cloud, Cal., at San Francisco, November 26.

HERBERT H. MCCAMPBELL, M.D., Knoxville, Tenn., to Miss Edna White of Springfield, Tenn., December 25.

EDWARD LIVINGSTON TRUDEAU, JR., M.D., Saranac Lake, N. Y., to Miss Hazel Martyn of Chicago, December 28.

GEORGE A. CARR, M.D., Durham, N. C., to Miss Bettie May Hunt of Oxford, N. C., at Durham, December 14.

EDWARD J. RUDDOCK, M.D., Guerneville, Cal., to Miss Eva L. Stanford of Alameda, Cal., at Santa Rosa, Cal., December 16.

EMMETT P. NORTH, M.D., St. Louis, Mo., to Miss Maud Isbell, daughter of Dr. John Isbell of Washington, Mo., December 2.

JAMES ROSS CHURCH, M.D., U. S. Army, Fort Trumbull, Conn., to Miss Beulah Maude Boss of New London, Conn., December 9.

ARTHUR MARSTON STIMSON, M.D., assistant surgeon U. S. P. H. and M.-H. Service, to Miss Sarah A. Boyd of Tiverton, R. I., at New Orleans, December 9.

Deaths.

Harry C. Hume, M.D. Kentucky School of Medicine, Louisville, 1892, of Paragould, Ark., a member of the American Medical Association, Arkansas Medical Society, and Greene County Medical Society, died at his old home, New Harmony, Ind., Dec. 17, after an illness of more than two years from consumption, aged 30.

William Scarborough Braxton Henry, M.D. Jefferson Medical College, Philadelphia, surgeon of the Fortieth Virginia Infantry, C. S. A., in the Civil War, some-time physician to the Omaha and Winnebago agencies in Nebraska, died in Falls Church, Va., December 12, from heart disease, after a brief illness, aged 76.

Corydon Pirnie Crouk, M.D. Columbian University, Washington, D. C., 1888, of Norfolk, Va., for ten years in charge of the Baltimore station of the U. S. Weather Bureau and for the last six years stationed at Cape Henry, Va., died at the City Hospital, Baltimore, December 13, from Addison's disease, aged about 45.

Francis W. Higgins, M.D. New York University, 1881, a member of the American Medical Association, vice-president of the New York State Medical Association, and president of the Third District branch of that organization, died suddenly in his office at Cortland, N. Y., from heart disease, December 18, aged 46.

Francis A. Kitchen, M.D. University of Pennsylvania, Philadelphia, 1856, formerly surgeon of volunteers in the Civil War; medical director of the Department of Ohio, G. A. R., and city physician of Toledo, died at his home in that city, December 18, from pneumonia, after an illness of four weeks, aged 83.

Samuel B. Howell, M.D., of Philadelphia, some-time secretary of the Philadelphia College of Physicians, one of the founders of the Medico-Chirurgical College, and dean of the Auxiliary Department of Medicine of the University of Pennsylvania, died at Atlantic City, N. J., December 12.

William H. A. Young, M.D. Eclectic Medical College of the City of New York, 1872, was shot through the heart and killed by the accidental discharge of a rifle which he was placing in his carriage, at his home in Springfield, Mass., December 26.

John W. Hamilton, M.D. Bennett College of Eclectic Medicine and Surgery, Chicago, 1870, who had suffered for several months from insomnia, committed suicide by taking cyanid of potassium, at his rooms in San Francisco, December 14, aged 66.

George E. Blackman, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1886, of Vernon, Texas, died recently from consumption, in the mountains of Colorado, where he had gone for his health.

J. Reynolds Tillinghast, Jr., M.D. College of Physicians and Surgeons, New York, 1895, of Saranac Lake, N. Y., died at Colorado Springs, Colo., December 13, from consumption, after a long illness.

Charles L. Tindall, M.D. Hahnemann Medical College, Philadelphia, 1888, died at his home in Philadelphia, December 15, from tuberculous laryngitis, after an illness of several months.

Charles A. Moran, M.D. Southern Medical College, Atlanta, Ga., 1885, of Atlanta, died at St. Joseph's Infirmary in that city, December 20, from anemia, after a long illness, aged 45.

Charles H. Busheng, M.D. College of Physicians and Surgeons, 1885, died December 20, from consumption, after an illness of two years, at his home in New York City, aged 47.

William R. Harper, M.D. American Medical College, St. Louis, 1889, died at his home in Mitchellville, Ill., December 7, from heart disease.

Robert Garrett Dock, M.D. Hahnemann Medical College, Philadelphia, 1894, died at his home in Germantown, Philadelphia, December 15.

Brooks R. Hamilton, M.D. College of Physicians and Surgeons, Keokuk, 1870, died at his home in Nauvoo, Ill., December 9, aged 66.

Samuel Thomas, M.D., died at his home in Greenville, Ohio, December 17, from dysentery, after an illness of two weeks, aged 76.

William M. Shaler, M.D. University of Michigan, Ann Arbor, 1870, dropped dead at his home in Three Rivers, Mich., December 18.

William S. Hopson, M.D., the oldest practitioner of Hopkinsville, Ky., died at his home in that place, December 18, aged 89.

Jerome A. Anderson, M.D. University of California, San Francisco, 1873, died at his home in San Francisco, December 26.

Oscar F. Decker, M.D. University of Buffalo, 1871, died at his home in Buffalo, N. Y., from apoplexy, December 11, aged 64.

James R. D. Long, M.D. University of Nashville, 1880, died suddenly at his home in Richardson, Texas, December 15.

Samuel Sanford, M.D., 1849, died at his home in Lima, Ohio, December 17, after a long illness, aged 75.

J. H. Pickett, M.D., died at his home in Ty Ty, Ga., December 15, from dropsy, after a long illness.

Mathias Brand, Jr., M.D. Chicago Medical College, 1886, died at his home in Chicago, November 21.

J. L. Scott, M.D., died at his home in Denison, Texas, December 17, aged 84.

Miscellany.

Apropos of the Anti-Bath Doctor.—The following ode, which appeared in the Chicago *Record-Herald* Dec. 22, 1903, was suggested by an eclectic physician's having preached against the custom of bathing.[1] Although this will not go down to future ages as an example of the finest poetry, it nevertheless contains enough point to be worthy of reproduction.

OWED TO DR. R——.

Who is the man who takes no bath?
Who claims to health it is the path?
Who in his system no germs hath?
A doctor!!!

Who says that soap destroys all fat?
Who's never in a "sitz bath" sat?
Who simply will not bathe—that's flat?
A doctor!!!

Who "sets aside claims excretory"?
Likewise all claims respiratory?
Who leaves it to perspiratory?
A doctor!!!

Who seems to emulate the tramp?
Who never gets his system damp?
Who if he bathes might have a cramp?
A doctor!!!

—M. G. SMITH.

State Boards of Registration.

COMING EXAMINATIONS.

Utah State Board of Medical Examiners, Salt Lake City, Jan. 4, 1904. Secretary, Dr. R. W. Fisher, Salt Lake City.

State Medical Examining Board of Washington, Tacoma, Jan. 5-6, 1904. Secretary, Dr. P. B. Swearingen, Tacoma.

Board of Medical Examiners of Arizona, Phoenix, Jan. 4-5, 1904. Secretary, Dr. Wm. Duffield, Phoenix.

State Medical Examining Board of North Dakota, Grand Forks, Jan. 5, 1904. Secretary, Dr. H. M. Wheeler, Grand Forks.

Board of Medical Examiners of the State of Oregon, Portland, Jan. 5, 1904. Secretary, Dr. Byron E. Miller, Portland.

Colorado State Board of Medical Examiners, 1723 Tremont St., Denver, Jan. 5-6, 1904. Secretary, Dr. S. D. Van Meter, Denver.

Minnesota State Board of Medical Examiners, State Capitol Bldg., St. Paul, Jan. 5-7, 1904. Secretary, Dr. C. J. Ringnell, Minneapolis.

State Board of Health of Rhode Island, State House, Providence, Jan. 7, 1904. Secretary, Dr. G. T. Swarts, Providence.

Indiana State Board of Medical Registration and Examination, Indianapolis, Jan. 13, 1904. Secretary, Dr. W. T. Gott, Crawfordsville.

Board of Medical Examiners of South Dakota, Cataract Hotel, Sioux Falls, Jan. 13-15, 1904. Secretary, Dr. H. E. McNutt, Aberdeen.

Wisconsin Board of Medical Examiners, Milwaukee, Jan. 12, 1904. Secretary, Dr. F. R. Forsbeck, Milwaukee.

State Medical Board of Arkansas, Little Rock, Jan. 12, 1904. Secretary, J. P. Runyan, Little Rock.

Vermont State Board of Medical Censors, Y. M. C. A. Bldg., Burlington, Jan. 13-14, 1904. Secretary, Dr. S. W. Hammond, Rutland.

Board of Medical Supervisors of the District of Columbia, Washington, Jan. 14, 1904. Secretary, Dr. Wm. C. Woodward, Washington.

Illinois State Board of Health, Great Northern Hotel, Chicago, Jan. 14-16, 1904. Secretary, Dr. J. A. Egan, Springfield.

Iowa State Board of Medical Examiners, Capitol Bldg., Des Moines, Jan. 26-27, 1904. Secretary, Dr. J. P. Kennedy, Des Moines.

New York State Board of Regents, at New York, Albany, Syracuse and Buffalo, Jan. 26-29. Secretary, James Russell Parsons, State Capitol, Albany.

Oklahoma Report.—Dr. E. E. Cowdrick, secretary of the Oklahoma Medical Examining Board, reports the written examination held at Enid, November 10, as follows: Subjects, 9; questions, 77; percentage, 66 2/3; applicants, 18; passed, 5; failed, 13.

Colleges.	Year Grad.	Per Cent.
Amer. Med. Missionary Coll., Chicago	1902	86.5
Cleveland Hom. Med. College	1901	83.0
Missouri Medical College	1884	81.3
University of Missouri	1902	80.5
Hospital Coll. of Med., Louisville	1903	81.6

FAILED.

Those who failed were graduates of: Toledo (Ohio) Medical College, 1886; Central Coll. of P. and S., Indianapolis, 1903; Rush Med. Coll., Chicago, 1878; Miami (Ohio) Med. College, 1902; Coll. of P. and S., Baltimore, 1876; Univ. of Kentucky, 1903; Kansas City Med. Coll., 1903; Univ. of Louisville, 1897; Memphis Hosp. Med. Coll., 1892; Hosp. Coll. of Med., Louisville, 1900; Coll. of P. and S., Keokuk, Iowa, 1876; Barnes Med. Coll., St. Louis, 1897.

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of medical officers for the two weeks ending Dec. 24, 1903:

Webb, W. D., Turnbull, Wilfrid, and Porter, Ralph S., asst.-surgeons, ordered to proceed to Washington, D. C., and report to the president of the examination board for examination to determine their fitness for advancement.

Peed, George P., and Thomason, H. D., asst.-surgeons, ordered to proceed to San Francisco and report to the president of the examining board for examination to determine their fitness for advancement.

Hartnett, E. H., asst.-surgeon, granted fourteen days' leave of absence to take effect Jan. 1, 1904, par. 8 S. O., 296, Dept. of the East.

Johnson, R. W., surgeon, ordered to proceed to St. Louis, for duty pertaining to the exhibit of the Medical Department of the Army at the Louisiana Purchase Exposition.

Carroll, James, asst.-surgeon, detailed to represent the Medical Department of the Army at the meeting of the Society of American Bacteriologists, to be held in Philadelphia, Dec. 29-30, 1903.

Usher, F. C. M., asst.-surgeon, granted leave of absence for one month.

Allen, J. H., asst.-surgeon, relieved from further duty in the Division of the Philippines and ordered to U. S. General Hospital, Presidio of San Francisco, for duty.

Chidester, W. C., asst.-surgeon, relieved from duty at U. S. General Hospital, Presidio of San Francisco, and ordered to Fort Lawton, Wash., for duty.

Mathews, Geo. W., asst.-surgeon, granted ten days' leave of absence from Dec. 24, 1903.

Williams, A. W., asst.-surgeon, granted leave of absence for seven days from Dec. 24, 1903, with permission to apply for extension of twenty-three days.

Jean, Geo. W., asst.-surgeon, to proceed to Fort Greble, R. I., for temporary duty during absence on leave of Lieutenant Williams.

Ford, J. H., asst.-surgeon, relieved from duty at U. S. General Hospital, Washington Barracks, D. C., and ordered to Fort Reno, O. T.

Farr, C. W., asst.-surgeon, relieved from duty at Fort Reno, O. T., and ordered to proceed to Fort Mason, Cal., for duty.

Ekwursel, G. M., asst.-surgeon, relieved from temporary duty at New Haven, Conn., and ordered to Fort Trumbull, Conn., for duty.

Church, J. R., asst.-surgeon, relieved from duty at Fort Trumbull, Conn., and ordered to Fort Brown, Texas, for duty.

Hartsock, F. M., asst.-surgeon, granted ten days' leave of absence.

Patterson, Edwin W., contract surgeon, has been relieved from further duty in the Division of the Philippines, and at the expiration of his three months' leave of absence will report for duty at Fort Washington, Md.

Bally, Howard H., contract surgeon, has been granted a month's leave from the Division of the Philippines, with permission to visit the United States and apply for an extension of two months.

1. See editorial in this issue.

Blauvelt, Geo. M., asst.-surgeon, ordered to New Haven, Conn., for special duty during the illness of Asst.-surgeon DeWitt.

Hartsock, T. M., asst.-surgeon, arrived in New York City from Peking, China, via Siberia and England.

Ford, Joseph H., Dean, Elmer A., Steer, Samuel L., Truby, Willard F., and Williamson, L. P., asst.-surgeons, promoted captain and asst.-surgeons, U. S. Army, from date.

Crabtree, Geo. H., asst.-surgeon, granted fifteen days' leave of absence.

Van Dusen, Jas. W., asst.-surgeon, leave of absence on account of sickness extended one month.

Shockley, M. A. W., asst.-surgeon, leave of absence extended one month.

Hartsock, F. M., asst.-surgeon, ordered to report to president of examining board at Army Medical Museum Building, Washington, D. C., for examination for promotion.

Kendall, Wm. P., surgeon, ordered to proceed (in returning to his station) to New York City to consult with the medical supply officer in that city in regard to purchase of instruments and equipment for the new operating room at the U. S. General Hospital, Presidio of San Francisco.

Sabin, Wallace E., contract surgeon, relieved from duty at Fort Lawton, Wash., and ordered to duty in the Philippine Islands.

Snyder, Calvin D., Baltimore; Cowper, Harold W., Buffalo, N. Y.; Williams, Adrian D., Brooklyn, and Pusey, James B., San Francisco, contract surgeons, ordered to duty in the Philippine Islands.

Chambers, William H., contract dental surgeon, granted twelve days' leave of absence about December 22.

Navy Changes.

Changes in the Medical Corps U. S. Navy for the week ending Dec. 19, 1903, no orders; for the week ending Dec. 26, 1903, as follows:

McClurg, W. A., medical inspector, ordered to the Bureau of Medicine and Surgery, Navy Department.

Johnson, M. K., surgeon, detached from the Naval Hospital, New York, and ordered to the *Tacoma*.

Schwerin, L. H., A. A. surgeon, detached from the *Southery* and ordered to the *Alexandria*.

Spratling, L. W., surgeon, detached from the *Hancock* and ordered to the navy yard, New York, for special temporary duty at the naval laboratory.

Carpenter, D. N., surgeon, detached from the Naval Hospital, Washington, D. C., and ordered to the *Dixie* for duty with the Panama Marine Brigade.

Spratling, L. W., surgeon, detached from the naval laboratory, Brooklyn, N. Y., and ordered to the *Dixie* for duty with the Panama Marine Brigade.

Angney, G. L., P. A. surgeon, detached from the Naval Hospital, Philadelphia, Pa., and ordered to the *Dixie* for duty with the Panama Marine Brigade.

Marine-Hospital Service.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ended Dec. 17, 1903.

Bailhache, Preston H., surgeon, detailed to represent the service at the Convention to Consider the Questions Involved in Mosquito Extermination, to be held in New York, December 16.

Irwin, Fairfax, surgeon, granted leave of absence for two days from December 24.

Brooks, S. D., surgeon, to rejoin station at Savannah, Ga.

White, J. H., surgeon, granted leave of absence for five days from December 17.

Carrington, F. M., surgeon, three days' leave of absence from Dec. 15, 1903, under paragraph 189 of the Regulations.

Guiteras, G. M., surgeon, granted leave of absence for three months from December 19.

Perry, J. C. P. A. surgeon, detailed to represent the service at the Convention to Consider the Questions Involved in Mosquito Extermination, to be held in New York Dec. 16.

Greene, J. B., P. A. surgeon, on being relieved at Cleveland by P. A. surgeon H. S. Matheweon, to proceed to Havana, Cuba, for duty in office of U. S. Consul-General, relieving Asst. Surgeon F. E. Trotter.

Matheweon, H. S., P. A. surgeon, relieved from duty at Detroit, Mich., and directed to proceed to Cleveland, Ohio, and assume command of the service at that port, relieving Surgeon J. B. Greene.

Von Ezdorf, R. H., P. A. surgeon, relieved from duty at Laredo, Texas, and directed to proceed to Washington, D. C., and report at Bureau.

Billings, W. C., asst.-surgeon, granted leave of absence for fourteen days from December 13.

Kerr, J. W., asst.-surgeon, to proceed to Ellis Island, New York, and report to Surgeon G. W. Stoner for duty.

Goldberger, Joseph, asst.-surgeon, to report to director of Hygienic Laboratory for duty.

Trotter, F. E., asst.-surgeon, on being relieved from duty at Havana, Cuba, by P. A. Surgeon J. B. Greene, to proceed to San Francisco and report to medical officer in command for duty and assignment to quarters.

Lloyd, R. J., asst.-surgeon, to proceed to Concord Cal., for special temporary duty.

Stimson, A. M., asst.-surgeon, granted leave of absence for seven days from Dec. 5, 1903, under paragraph 191 of the Regulations.

Foster, A. D., asst.-surgeon, to proceed to Ellis Island, New York, and report to Surgeon G. W. Stoner for temporary duty.

Ballard, J. C., A. A. surgeon, granted leave of absence for five days from December 24.

Safford, M. V., A. A. surgeon, granted leave of absence for four days from Dec. 14, 1903, under paragraph 210 of the Regulations.

Stearns, H. H., A. A. surgeon, granted leave of absence for fourteen days from December 18.

Maguire, E. S., pharmacist, department letter of November 21, granting leave of absence for thirty days from Nov. 1, 1903, amended so as to read thirty days from December 1.

Gibson, R. H., pharmacist, granted leave of absence for eight days from December 26.

Ryder, L. W., pharmacist, department letter of December 9, granting leave of absence for fifteen days from Dec. 10, 1903, amended to read fifteen days from December 7.

BOARD CONVENED.

Board convened to meet at Philadelphia, Pa., Dec. 17, 1903, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Surgeon Fairfax Irwin, chairman; Asst.-Surgeon W. A. Korn, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the two weeks ended Dec. 24, 1903:

SMALLPOX—UNITED STATES.

California: San Francisco, Nov. 29-Dec. 6, 1 case.
Illinois: Belleville, Dec. 5-12, 1 case; Chicago, Dec. 4-11, 1 case.
Louisiana: Baton Rouge, Nov. 28-Dec. 5, 1 case; New Orleans, Dec. 5-12, 2 cases, imported.
Massachusetts: Boston, Nov. 28-Dec. 5, 1 case; North Adams, Dec. 5-12, 1 case.
Michigan: Port Huron, Dec. 5-12, 1 case.
New Hampshire: Manchester, Dec. 5-12, 2 cases.
New Jersey: Camden, Dec. 5-12, 1 case.
New York: New York, Dec. 5-12, 2 cases.
Ohio: Cincinnati, Dec. 4-11, 4 cases; Dec. 5-12, Dayton, 1 case; Youngstown, 12 cases.
Pennsylvania: Nov. 30-Dec. 12, Altoona, 3 cases; Carbondale, 2 cases; Dec. 5-12, Erie, 3 cases; Johnstown, 3 cases, 2 deaths; McKeesport, 2 cases; Norristown, 1 case; Philadelphia, 67 cases, 16 deaths; Pittsburg, 25 cases, 8 deaths; Reading, Dec. 7-14, 1 case.
Tennessee: Memphis, Dec. 5-12, 20 cases.
Utah: Ogden, Nov. 1-30, 1 case.
Wisconsin: Milwaukee, Nov. 28-Dec. 12, 11 cases.

SMALLPOX—FOREIGN.

Colombia: Barranquilla, Nov. 22-29, 2 deaths.
Brazil: Rio de Janeiro, Nov. 8-15, 36 cases, 35 deaths.
Ecuador: Guayaquil, Nov. 14-21, 1 death.
France: Lyons, Nov. 14-21, 1 death; Paris, Nov. 21-28, 7 deaths; Rouen, Nov. 1-30, 3 deaths.
Great Britain: Glasgow, Nov. 27-Dec. 5, 20 cases, 3 deaths; London, Nov. 14-28, 16 cases; Nov. 21-28, Manchester, 4 cases; Newcastle-on-Tyne, 1 case, 1 death; Nottingham, 2 cases.
Italy: Catania, Nov. 19-26, 4 deaths.
Mexico: Monclova, Dec. 10, 1 case.
Russia: Nov. 14-21, Moscow, 3 cases, 1 death; St. Petersburg, 59 cases; Warsaw, Oct. 31-Nov. 7, 1 death.
Turkey: Constantinople, Nov. 15-22, 6 deaths.

YELLOW FEVER—UNITED STATES.

Texas: Laredo, Dec. 8-15, 7 cases, 2 deaths.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, Nov. 8-15, 3 cases, 1 death.
Ecuador: Guayaquil, Nov. 21-28, 1 death.
Mexico: Coatzacoalcos, Nov. 28-Dec. 5, 1 case.

CHOLERA—FOREIGN.

India: Calcutta, Nov. 1-14, 50 deaths.
Japan: Nagasaki, Nov. 10-20, 33 cases, 18 deaths.
Straits Settlements: Singapore, Oct. 24-31, 35 deaths.

PLAGUE—FOREIGN.

Africa: Cape Colony, Oct. 17-24, 2 cases.
Brazil: Rio de Janeiro, Oct. 8-15, 40 cases, 17 deaths.
Egypt: Nov. 7-13, Alexandria, 1 death; Samalfut, 1 case, 1 death.
India: Bombay, Nov. 8-17, 103 deaths; Calcutta, Nov. 1-14, 35 deaths; Karachi, Nov. 1-8, 7 cases, 7 deaths.
Japan: Yokohama, Oct. 31-Nov. 7, 1 case, 1 death.

SMALLPOX—UNITED STATES.

California: San Francisco, Dec. 6-13, 2 cases.
Illinois: Dec. 12-19, Belleville, 2 cases; Danville, 1 case.
Indiana: Evansville, Dec. 12-19, 2 cases.
Louisiana: New Orleans, Dec. 12-19, 3 cases, imported.
Maine: Biddeford, Dec. 12-19, 1 case.
Massachusetts: Haverhill, Dec. 12-19, 1 case.
Michigan: Dec. 12-19, Detroit, 2 cases; Port Huron, 2 cases; Flint, Dec. 6-13, 4 cases.
Mississippi: Natchez, Dec. 6-13, 26 cases.
New Hampshire: Manchester, Dec. 12-19, 1 case.
New Jersey: Camden, Dec. 12-19, 2 cases.
Ohio: Cincinnati, Dec. 11-18, 5 cases, 1 death.
Pennsylvania: Dec. 12-19, Erie, 5 cases, 1 death; McKeesport, 1 case; Philadelphia, 90 cases, 22 deaths; Pittsburg, 27 cases, 8 deaths, 2 imported; Johnstown, Dec. 14-21, 1 case, 1 death.
Tennessee: Memphis, Dec. 12-19, 17 cases.
Wisconsin: Milwaukee, Dec. 12-19, 2 cases.

SMALLPOX—FOREIGN.

Austria-Hungary: Nov. 21-28, Prague, 7 cases; Trieste, 2 cases.
Belgium: Antwerp, Nov. 21-28, 2 cases, 2 deaths.
Brazil: Rio de Janeiro, Nov. 15-29, 90 cases, 59 deaths.
France: Paris, Nov. 28-Dec. 5, 12 cases.
Great Britain: Birmingham, Nov. 21-Dec. 5, 9 cases; Glasgow, Dec. 4-11, 20 cases, 2 deaths; Nov. 28-Dec. 5, London, 3 cases; Manchester, 4 cases; Nottingham, 2 cases; Southampton, 1 case.
India: Bombay, Nov. 17-24, 1 death.
Italy: Catania, Nov. 26-Dec. 10, 6 deaths; Palermo, Nov. 14-21, 1 case.
Java: Batavia, Oct. 21-Nov. 7, 16 cases, 5 deaths.
Mexico: City of Mexico, Nov. 22-29, 1 case, 1 death.
Russia: Warsaw, Nov. 14-21, 6 deaths.
Spain: Coruna, Nov. 21-28, 1 death.
Turkey: Constantinople, Nov. 22-29, 7 deaths; Smyrna, Nov. 15-22, 14 deaths.

YELLOW FEVER—UNITED STATES.
Texas: Cannel, Dec. 13, 1 case; Laredo, Dec. 15-18, 6 cases.

YELLOW FEVER—FOREIGN.
Brazil: Rio de Janeiro, Nov. 22-29, 1 case, 1 death.
Mexico: Vera Cruz, Nov. 28-Dec. 19, 22 cases, 7 deaths.

CHOLERA—FOREIGN.
India: Calcutta, Oct. 31-Nov. 21, 49 deaths.
Straits Settlements: Singapore, Oct. 31-Nov. 7, 24 deaths.
Turkey in Asia: Nov. 16, 116 cases, 114 deaths.

PLAGUE—FOREIGN.
Brazil: Rio de Janeiro, Nov. 15-29, 85 cases, 43 deaths.
India: Bombay, Nov. 17-24, 55 deaths; Karachi, Nov. 8-22, 15 cases, 14 deaths.

Medical Organization.

Indiana.

FULTON COUNTY MEDICAL SOCIETY.—At its first annual meeting held in Rochester, December 22, this society completed its organization and elected the following officers: Dr. John M. Ward, Kewanna, president; Dr. Aaron Johnston, Akron, vice-president; Dr. George E. Hoffman, Rochester, secretary; Dr. Charles J. Loring, Rochester, delegate, and Drs. Alphonso Armstrong, Kewanna, and Angus Brown and Milo O. King, Rochester, censors.

MEETING OF THE COUNCIL.—A meeting of the council of the Indiana State Medical Association was held at Indianapolis, December 17. Dr. Albert E. Bulson, Jr., secretary, writes us that the meeting was very successful. It was presided over by Dr. William N. Wishard, Indianapolis, president of the council. Eleven of the thirteen districts were represented, all except two of the councilors being present. In addition to the members of the council there were present Dr. Jonas Stewart, Anderson, and Dr. Frederick C. Heath, of Indianapolis, president and secretary respectively of the state association, and Dr. J. N. McCormack, Bowling Green, Ky., representing the American Medical Association. The reports of the councilors showed that in every district in Indiana, the work of reorganization is progressing rapidly, and that in ten of the districts complete reorganization has been effected. There is no county society in the state that has not shown some gain in membership since the adoption of the reorganization plan. In many counties the gain has been very marked. In several counties in which there has never been a medical organization there is now an active medical society. Taking everything into consideration the reports from the various councilors were very encouraging. Dr. Stewart asked the advice of the council relative to the appointment of delegates to the American Congress on Tuberculosis, which has been advertised to meet in St. Louis early in 1904. After some discussion the council passed a resolution[1] refusing to endorse the said congress. It was the unanimous opinion of the councilors that the Indiana medical profession should not only decline to take any part in this congress, but that it should in no uncertain tone, express its disapproval of the scheme.

Iowa.

MARION COUNTY MEDICAL SOCIETY.—This society was reorganized, December 12, with the following officers: President, Dr. Clarence P. Cook, Otley; vice-president, Dr. Gaylord Worstill, Knoxville; secretary, Dr. Corwin W. Cornell, Knoxville; treasurer, Dr. John V. Brann, Knoxville, and delegate, Dr. Benjamin F. Keables, Pella.

WINNEBAGO COUNTY MEDICAL SOCIETY.—At a business session of this society held at Lake Mills, December 9, the standard constitution and by-laws was adopted, and the reorganization perfected, the following officers being re-elected: Dr. Harry R. Irish, Forest City, president; Dr. Ferdinand A. Christensen, Lake Mills, vice-president; Dr. Luther Wall, Thompson, secretary, and Dr. Gisele M. Lee, Thompson, treasurer.

ADAMS COUNTY MEDICAL SOCIETY.—Physicians of the county met at Corning, December 15, and organized a society on the standard plan with the following officers: Dr. W. J. Wallahan, Nodaway, president; Dr. Homer L. Sweet, Mount Etna, vice-president; Dr. Charles H. Bryant, Corning, secretary and treasurer; Dr. Frances E. Potter, Corning, delegate, and Drs. James R. Thompson, Corning, W. F. Stotler, Corning, and William F. Amdor, Carbon, censors.

Kentucky.

Dr. Arthur T. McCormack, Bowling Green, councilor for the Third District, reports the organization of the following county societies in the mountain section of his district. The organization of these counties gives an active organization in every county in the district except Edmonson, and the only two physicians in that county are members of the Warren County Medical Society. This organization trip covered a distance of about 275 miles, all off the railroad, and through part of the territory the only roads were along creek beds, requiring a week to make the trip.

MONROE COUNTY MEDICAL SOCIETY.—On November 19 the banner meeting of the trip was held in Tompkinsville, and resulted in the organization of this society. The officers elected were Drs. R. Finley Duncan, Tompkinsville, president; Dr. J. A. Flippin, Tompkinsville, vice-president, and Dr. Eugene E. Palmore, Strode, secretary-treasurer.

CUMBERLAND COUNTY MEDICAL SOCIETY.—On November 13 this society was organized in Burksville. The new constitution and by-laws were adopted, and a very strong organization was perfected. The following officers were elected: Dr. Henderson L. Cartwright, president; Dr. Archibald A. Streng, Burksville, vice-president, and Dr. W. Fayette Owsley, secretary-treasurer, all of Burksville.

METCALFE COUNTY MEDICAL SOCIETY.—The physicians of Metcalfe County met in Edmonton, November 17, and unanimously adopted the model constitution and by-laws. The society will meet on the third Saturday of each month in the summer and twice during the winter. The officers elected were Dr. John A. Yates, Edmonton, president; Dr. J. H. Owen, Randolph, vice-president; Dr. H. R. Van Zant, Edmonton, secretary-treasurer, and Dr. Zachariah G. Taylor, Knob Lick, delegate.

ALLEN COUNTY MEDICAL SOCIETY.—On November 20 the physicians of Allen county met, and after a full discussion reorganized this society. The following officers will attest the health of the new society and promise to help give it a long and active life: Dr. Marcellus W. Whitney, Gainesville, president; Dr. William E. Meredith, Scottsville, vice-president; Dr. Andrew L. Wagoner, Scottsville, secretary-treasurer; Dr. William E. Meredith, Scottsville, delegate to state association, and Drs. John B. House, Scottsville, Hubert M. Meredith, Petroleum, and John E. Pace, Gainesville, censors.

The next aim in this district will be to secure on each county roster the name of every eligible physician within its boundaries. This has already been almost accomplished in several counties. The officers of the county societies authorize the councilor to challenge any other district in the United States to beat them to this goal.

Maryland.

CECIL COUNTY MEDICAL SOCIETY.—This society has decided to reorganize on the standard plan at its April meeting.

ANNE ARUNDEL COUNTY MEDICAL SOCIETY.—At a meeting held in Annapolis, December 8, Dr. John Ruhrah, Baltimore, representing the Medical and Chirurgical Faculty of Maryland, delivered an address on "Medical Reorganization."

KENT COUNTY MEDICAL SOCIETY.—A medical society has been organized in Kent County (Eastern Shore) with Dr. Thomas B. Wilson, Edesville, president; Dr. W. Frank Hines, Chestertown, vice-president, and Dr. H. G. Simpson, secretary-treasurer.

TALBOT COUNTY MEDICAL SOCIETY.—This society was organized at Easton (Eastern Shore), December 17, with the following officers: President, Dr. Julius A. Johnson, Easton; vice-president, Dr. James A. Stevens, Oxford; secretary and treasurer, Dr. Philip Lee, Travers, Easton, and censors, Drs. Samuel C. Trippe, Royal Oak, Charles H. Rose, Cordova, and Joseph S. Garrison, Easton. Dr. Thomas S. Cullen, Baltimore, representing the Medical and Chirurgical Faculty of Maryland, called the meeting to order, outlined the standard plan of organization and recited the essential advantages to be derived therefrom.

Society Proceedings.

AMERICAN ROENTGEN RAY SOCIETY.

Fourth Annual Meeting, held in the University of Pennsylvania, Philadelphia, Dec. 9-10, 1903.

The President, Prof. A. W. Goodspeed, in the Chair.

New Officers.

The following were elected to officiate during the ensuing year: President, James B. Bullitt, Louisville, Ky.; vice-presidents, John B. Murphy, Chicago; G. R. Barnes, Buffalo, and Charles L. Leonard, Philadelphia; executive committee, W. W. Johnson, Rochester, N. Y.; Preston H. Hickey, Detroit, and

1. See page 43 of this issue.

Kennon Dunham, Cincinnati. The next place of meeting is to be decided on by the executive committee.

Pathologic Changes in Tissue Under the Influence of the X-Ray.

DR. W. S. NEWCOMET, Philadelphia, said that the changes consists of: 1, degeneration with vascularization of the epithelial pearls; 2, leucocytic infiltration of varying degree, which completes the destruction.

DISCUSSION.

DR. W. A. PRICE, Cleveland, Ohio, suggested that possibly *x*-ray tubes possess a variety of powers of penetration, from high to low, and that these rays are active all the time, thus accounting for the various ways in which tissues are affected when subjected to the same technic.

DR. HENRY HULST, Grand Rapids, Mich., believes that the reaction from the high or low tube is the same, and that the first effect of the *x*-ray is a stimulating one, followed by depression and finally dissolution. *X*-ray activity is dependent on the amount of rays absorbed by the tissue.

DR. GORDON G. BURDICK, Chicago, reduces all his tubes below the line where any rays are given off. He controls the degree of penetration of the ray by the speed with which he drives the cathode stream; this, in turn, is controlled by the electromotive force of the apparatus.

The Results of the Roentgen Method in the Diagnosis of Renal Calculi.

DR. CHARLES L. LEONARD, Philadelphia, said the *x*-ray is valuable in differentiating disease of the kidney, especially calculus, as it is accurate, and renders exploratory operation unnecessary. There is less than three per cent. of error. The *x*-ray is a valuable means of diagnosis in cases of appendicitis or oöphoritis.

DISCUSSION.

DR. JAMES B. BULLITT, Louisville, Ky., cited a case in which the *x*-ray revealed a renal calculus which had been overlooked at the time of operation.

DR. HENRY HULST, Grand Rapids, Mich., advised compression of the body so as to cut out the secondary rays by lessening the distance between the anode and the plate. Another method that is especially useful in large subjects is inflation of the colon with air.

Two Cases of Severe X-Ray Necrosis, Presenting Some Unusual Features.

DR. CLARENCE E. SKINNER, New Haven, Conn., in a paper by this title, drew the following conclusions: 1. Patients who tan well are not immune to burns. 2. The physiologic action of the *x*-light is not confined to the stimulant or destructive influence on the tissues that already exists; it is capable of modifying more or less permanently the developmental functions that control cell growth. 3. The cessation of the pain when the necrotic tissue was shed, proves that this acts as an irritant by developing toxins that act on the peripheral nerve endings. 4. The direct electrical current promulgated healing, therefore galvanism may replace skin grafting. 5. The late appearance of new areas of necrosis may signify that the *x*-ray has a cumulative action. 6. No two cases of *x*-ray burn will react uniformly to the same palliative agent. 7. Patients should not be exposed to the *x*-ray with even a moderate degree of frequency through long periods of time, no matter how well they seem to bear them at first.

Dr. Skinner also reported a case of cervical adenitis treated with the *x*-ray in which there followed a marked growth of hair over those parts of the face and neck that had been exposed to the ray. Similar instances were reported by Drs. Allen, Pancoast, Girdwood, Bullitt and others.

Skiagraphy of the Chest.

DR. HENRY HULST, Grand Rapids, Mich., considers this a valuable aid in diagnosis, especially for pathologic detail. The subject must be at rest, and the exposure must be rapid, one second or less sufficing. To secure contrast, the plate may be sandwiched between calcium tungstate screens. The induction coil is preferable to the static machine. The tube must be able to keep its vacuum. The lowest tube that will do the work is the best for this rapid work.

How to Obtain an Instantaneous Skiagraph of the Thorax.

DR. MIHRAN A. KASSABIAN, Philadelphia, said that the coil is the most important part of the *x*-ray equipment. It should be of twenty inches spark-producing capacity. Next in importance is the interrupter. The electrolytic is the best. A rapid make and break, from 8,000 to 16,000 vibrations per minute, is best. Quick exposures require a rapidly vibrating interrupter. A high vacuum tube having high penetration is necessary. Intensifying screens should be used only when the condition of the patient demands the shortest possible exposure. The plate must be a highly sensitized one.

DISCUSSION.

DR. G. G. BURDICK, Chicago, is in favor of a longer exposure, 15 to 30 seconds. Successful instantaneous skiagraphy is largely dependent on a good plate developer. He prefers amidol, rodinol and metol to hydrochinon.

DR. P. M. HICKEY, Detroit, cautioned against mistaking the shadows of the blood vessels and bronchi for areas of consolidation.

Localisation of Foreign Bodies by the Roentgen Rays.

DR. W. E. SWEET, Philadelphia, in a paper on this subject, demonstrated his method and exhibited two localizing apparatuses which he uses.

Care of the Static Machine.

DR. HENRY E. WAITE, New York City, said that vapor in the machine is its arch enemy and is best removed with calcium chlorid, after first condensing with ice and salt. Whenever the atmosphere is cold and dry, open the machine widely and allow the plates to revolve slowly for half an hour. The plates are cleaned with kerosene oil, followed by vaselin. The brushes are boiled thoroughly in caustic potash, then rinsed in hot water and dried. All the buttons and sectors are cleaned with the kerosene oil. Do not overlook the glass legs of the platform.

DISCUSSION.

DR. W. W. JOHNSON, Rochester, N. Y., prefers the use of well-baked calcium chlorid to remove the moisture, without first condensing the vapor.

DR. J. C. PITKIN, Buffalo, places common quicklime in the bottom of his machine in a chamber specially built for this purpose so that the machine will not be injured by the lime.

DR. WETHERILL, Philadelphia, in order to determine the presence of moisture, places in his machine a strip of paper moistened with chlorid of cobalt solution.

DR. G. G. BURDICK uses for the same purpose an ordinary ginger cooky, which is a splendid hygrometer. He also exhausts the air from his apparatus, passing it through calcium chlorid before returning it to the machine, thus freeing it from vapor.

DR. G. P. GIRDWOOD and DR. W. W. JOHNSON mentioned instances where, by mistake, carbid of calcium was put into the machine with disastrous results.

The Trend of Modern Thought on the Subatomic Structure of Matter.

PRESIDENT A. W. GOODSPEED, in his annual address, discussed all the theories proposed by various physicists in the field indicated by the title.

The Development of the Skeleton, Radiographically Considered.

DR. PRESTON M. HICKEY, Detroit, drew the following conclusions: 1. This work is valuable not only from an embryologic and anatomic standpoint, but also from the clinical. 2. The radiograph offers a means for studying the formation of the bones, joints and epiphyses. 3. The statements in the text-books on anatomy regarding bone development are wrong, and should be revised according to the knowledge gained by the radiograph. 4. Reproduction of fetuses at different ages should be inserted in text-books on anatomy. 5. For diagnostic purposes radiographs of an injured joint should always be compared with the normal joint.

DISCUSSION.

DR. G. P. GIRDWOOD, Montreal, Canada, called attention to the fact that these radiograph studies of the fetus are

also of medicolegal importance in determining the age of the fetus.

DR. JAMES B. BULLITT of Louisville suggested that a complete radiographic atlas of growing bones and joints would be of great value to the surgeon as well as to the anatomist.

Technic for Making Good Dental Skiagraphs.

DR. WESTON A. PRICE, Cleveland, Ohio, prefers for this purpose a large coil, a Wehnelt interrupter and a tube that will show the bones of the hand white and transparent. He uses a special film of very flexible celluloid which is covered with a waterproof and lightproof material (unvulcanized black dental rubber, calendered thin). This film can not be either bent, broken or scratched.

Developers.

DR. GORDON G. BURDICK, Chicago, recommended the following developers: *Solution A.:* Metol and ortol 15 grams each; potassium metabisulphate, 8 grams; potassium bromid, 1 gram; distilled water, 1,000 grams. *Solution B.:* Sodium sulphite, dry 40 per cent., and sodium carbonate, dry 60 per cent. in water, 1,000 grams. Use 30 c.c. of each solution and dilute with water according to the effect desired. The less water the more contrast; the more water, the softer the negative.

DISCUSSION.

DR. KASSABIAN said that the trouble lay in the fact that operators fail to become thoroughly familiar with some one developer. They are all good, but must be used properly to produce good results.

DR. DIEFFENBACH, New York City, prefers edinol, a salt of metol.

DR. RUSSELL H. BOGGS, Pittsburg, in a paper on "Accuracy in X-Ray Diagnosis," favored a developer of: Edinol, 1 dram; sodium sulphate, 10 drams; sodium carbonate, 2 drams; water, 10 ounces.

The subject of "Collapsing Tubes" was considered by DR. H. K. PANCOAST and others. The belief was expressed that such an occurrence is due to the fact that some tubes are not annealed before being offered for sale.

Dangers to the X-Ray Operator.

DR. JOHN C. PITKIN, Buffalo, described very vividly the *x*-ray burn and its attendant symptoms. He advised the wearing of protecting gloves, glasses and office coat; and that the operator remain out of the field of the *x*-radiation as much as possible while the tube is excited.

DISCUSSION.

DR. W. A. PRICE exhibited a flexible rubber cloth that is a suitable protection against the *x*-ray. He suggested the possibility of a cumulative action of the *x*-ray which might evidence itself later in life. He also showed a non-conducting protective tube holder.

DR. JAMES A. MARSH, and others, called attention to the fact that the room and its contents become charged with secondary rays which may cause a burn on any part of the body which is not exposed to the direct ray.

In discussing the treatment of *x*-ray burn, it was shown that there is one remedial agent that is effective in all cases. In some instances, boric acid, lanolin and resorcin were effective; in others the exclusion of light, and in still others remedies such as are used in the treatment of the ordinary skin lesions, to which, however, the *x*-ray burn does not bear the slightest resemblance either etiologically or pathologically. It is as varied in its manifestations as is eczema.

Other papers were read by Dr. Kennon Dunham, Cincinnati, on "The Effect of Rays on Lower Animal Life"; by Dr. Henry K. Pancoast, Philadelphia, on "The Therapeutic Effect of the *X*-Rays," and by Mr. Martin Wilbert, on "A Comparative Study of Fractures of the Extremities."

INTERNATIONAL SANITARY CONFERENCE.

Held at Paris, Oct. 10 to Dec 3, 1903.

The International Sanitary Conference of Paris, 1903, was called by the government of the French Republic, at the instance of the government of Italy, for the twofold purpose of (1) consolidating into one text the decisions of the conventions of Paris, 1893, and Venice, 1897, and (2) of revising existing sanitary conventions in accordance with the advances of modern scientific research.

Delegates.

The following powers were represented by delegates: Germany, Argentine, Austria-Hungary, Belgium, Brazil, Denmark, Spain, United States, France, Great Britain, Greece, Italy, Luxemburg, Montenegro, Holland, Persia, Portugal, Roumania, Russia, Sweden and Norway, Servia, Switzerland and Turkey. Two powers, Mexico and Japan, were not represented.

In general, the delegation from each country consisted of diplomats and technical delegates. The diplomatic representatives were of course well known to each other and in their respective circles, and many of them had been in attendance on the Venice Conference of 1897. Among the technical delegates were to be noted Gaffky of Giessen and Nocht of Hamburg; Daimer and Kobler of Austria-Hungary; Beco and Voituron of Belgium; Cortezo y Prieto of Spain; Brouardel, Proust and Roux of France; Theodore Thomson, Clemow and Richardson of Great Britain, the last representing British India; Santoliquido of Italy; Ruijsch, Stekoulis and Plate of Holland; Panayote Bey of Persia; Silva Amado of Portugal; Cantacuzene and Talashesco of Roumania; d'Anrep, Karacanovsky and Samaskine of Russia; Wawrinsky of Sweden and Norway; Schmid of Switzerland; Duca Pacha of Turkey; and Ruffer of Egypt. The delegates of the United States were all technical and were Col. William C. Gorgas, assistant surgeon-general, U. S. A.; Assistant Surgeon-General H. D. Geddings, U. S. Public Health and Marine-Hospital Service; and Medical Inspector Frank Anderson, U. S. Navy.

The conference was called to order by M. Delcassé, minister of foreign affairs of France, who welcomed the delegates on behalf of the republic and the president. M. Camille Barrère, ambassador of France at Rome, was elected president of the conference, and M. Rocco Santoliquido, director-general of the public health of Italy, was chosen vice-president. The president made an eloquent and instructive address, and announced the corps of secretaries, and his address was responded to by the vice-president on behalf of the conference.

The conference at this meeting resolved itself into three great commissions, a technical under the chairmanship of Santoliquido; ways and means under the chairmanship of Barrère, and codification with Beco as chairman. On behalf of the United States Geddings acted on the technical, Gorgas on the ways and means, and Anderson on the codification, though every member of the conference had the privilege of attending the meetings of each commission.

In addition, the technical commission chose from among its numbers a subcommission of fifteen technicians, to whom were referred all questions of a purely scientific and technical nature. The sessions of this subcommission and of the technical commission were animated, lively, and at times almost stormy.

At the conclusion of the transactions of the technical subcommission Roux presented a report which was a masterpiece, and on behalf of the commission Proust presented an admirable report.

After the third plenary session there was a lengthy recess, as about this time the king and queen of Italy arrived in Paris as the guests of the French Republic. At the conclusion of this event, the meeting place of the conference was transferred to magnificent apartments at the ministry of foreign affairs, and meetings of the various commissions were held from day to day, with frequent recesses for private consultation and to give opportunity to delegates to communicate with their respective governments for instructions on points of practice and questions of policy as they arose. In the meantime many social attentions were conferred on the delegates.

At last the reports of the various commissions were completed, presented to plenary meetings of the conference and a tentative convention was prepared, which, after a recess of ten days, received signature on December 3.

During the conference occurred the sudden death of Prof. Adrian Proust, inspector-general of the sanitary service of

France, a distinguished sanitarian and one of the most conspicuous figures in the conference and its transactions. He was stricken with apoplexy while in the discharge of his duties at the Faculté de Médecine, and died November 26. The loss to the conference, to sanitary science and to France was a severe one, and the grief of the conference and the respect of its members for the deceased were manifested by the attendance of the conference as a body at the funeral ceremonies.

Accomplishments of the Conference.

1. A clearer view of plague and cholera was reached.

2. The convention report as signed represents the latest advances in the scientific investigation of plague; the period of incubation of the disease has been accepted as the period of observation, thus reducing to a minimum the hardships to be imposed on passengers.

3. An emphatic declaration has been made that merchandise is dangerous from the point of view of conveying plague, only when contaminated with pest products or harboring plague-stricken rats.

4. The rôle of the rat in the dissemination of plague has been very fully canvassed and the danger from the rodents fully recognized. Special attention has been paid to methods for their destruction in both empty and laden vessels.

5. Previous convention reports have been edited and codified, and inconsistencies and contradictions removed.

6. A much more calm and dispassionate feeling now exists as to the danger from plague. The disease is not lightly regarded, but has been robbed of much of its traditional terror.

7. While a proposition for the establishment of an international sanitary bureau does not form an integral part of the report, the formation of such a bureau will be urged on the signatory power through regular diplomatic channels.

8. The methods of disinfection of ships and merchandise as recommended in the reports and prescribed in the convention are modern, reasonable and effective.

A most gratifying feature of the conference is that the sanitary system of the United States is now more thoroughly understood and better appreciated abroad than ever before. The essentially American work of the sanitation of Havana and other Cuban cities, the abolition of yellow fever from the island, and the demonstration of the rôle of the mosquito in the transmission of the disease were subjects for unstinted praise, and the example of the United States was recommended to other countries for their guidance and emulation.

But the picture thus drawn has a reverse side. It was found impossible to obtain the signature of the Turkish delegates to the convention. No measure was proposed to which they did not make numerous reservations, and on the date of the signature, in addition to their reservations, they filed a general protest in the whole matter of the regulation of pilgrimages and the betterment of the sanitary situation under the control of the Ottoman government on the Red Sea and Persian Gulf. So long as the Ottoman government maintains this attitude it will be difficult to obtain the full benefit of the convention, and it remains to see what diplomatic representation will do.

BOSTON SOCIETY OF MEDICAL SCIENCES.

Meeting held Dec. 15, 1903.

The Etiology of Scarlet Fever.

DR. F. B. MALLORY of Harvard Medical School and of the pathologic department of the Boston City Hospital, read a paper on this subject, stating the results of his research in a series of cases and his discovery of certain protozoa in the skin of the patients. Bodies made up of a granular substance, with a firm reticulum, and in some cases one or more vacuoles, and in size 2 to 7 microns in diameter, were made out. There was a second group of radiate bodies, 4 to 9 microns in diameter, having a central body and 10 to 18 segments arranged about it. These definite rosettes with numerous segments "are closely analogous to the series seen in the asexual development (schizogony) of the malarial parasites, but in addition there are certain coarsely reticulated forms which may represent stages in sporogomy or be due to degeneration of the other forms." Later these segments separate from each other, but still maintain a relation to the central body.

Both groups stain well with methylen blue. Both are found in the epithelial cells of the epidermis, between these cells, in the superficial lymph spaces and in the spaces of the corium, but nowhere else.

Dr. Mallory pointed out the marked resemblance to the malarial parasites, illustrating by microscope and lantern slides. He has found the organisms in only four cases. Skin from early cases failed to show the parasite.

"In conclusion," said Dr. Mallory, "I wish to say that while I personally believe that these bodies are protozoa and have an etiologic relation to scarlet fever, I am far from claiming that such a relation has been proved."

Shape of Blood Corpuscles.

DR. FREDERICK I. LEWIS, a worker in the histologic laboratory of Harvard, stated his belief that the theory of a globular or bell-shaped red blood corpuscle, instead of the universally accepted biconcave disc as the normal shape of that corpuscle, has been found by certain experiments made by him in his work there.

The meeting concluded with an exposition of "Radium," illustrated by specimens, by Dr. Francis H. Williams.

SOUTHERN MEDICAL COLLEGE ASSOCIATION.

Annual Meeting, held at Atlanta, Ga., Dec. 14, 1903.

This meeting was a very satisfactory one, and the consensus of opinion was that ultimately there will be nothing in the way of amalgamating the Southern Medical College Association with the Association of American Medical Colleges. The following colleges were represented: Medical College of Virginia, Dr. C. Tompkins; Medical Department of University of Nashville, J. D. Jacobs; Medical Department of Vanderbilt University, G. C. Savage; Medical Department of University of the South, J. S. Cain; Birmingham Medical College, J. C. LeGrande; Medical Department of Fort Worth University, Bacon Saunders; Medical Department of University of Tennessee, Dr. R. O. Tucker; Medical Department of Baylor University, J. M. Rosser; Tennessee Medical College, Knoxville, Charles P. McNabb; Medical Department of University of Mississippi, J. B. Bullitt.

The president, in his address, recommended that still further advancement be made in the way of preliminary requirements, and there was an amendment to the constitution offered with that in view, this amendment requiring two years in the high school. An amendment to the constitution was adopted requiring that forty-one months shall intervene between matriculation for the first course and the date of graduation, and requiring that eleven months shall intervene between the matriculation for any one course, and the matriculation for the next succeeding course.

The Memphis Hospital Medical College applied for readmission into the association, and the application was laid over for one year, according to the constitution.

New Officers.

The officers for the ensuing year are: Dr. C. Tompkins, president; Dr. Bacon Saunders, vice-president; Dr. G. C. Savage, secretary-treasurer; Drs. J. S. Cain, L. C. LeGrande and James M. Rosser, executive committee.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Sixteenth Annual Session, held in Atlanta, Ga., Dec. 15-17, 1903.

Under the presidency of Dr. J. Wesley Bovée, Washington, D. C.

An address of welcome was delivered by Mayor Evan P. Howell, which was responded to by Dr. George Ben Johnston. After a brief report by the chairman of the local committee of arrangements, Dr. Willis F. Westmoreland, the reading of papers was begun.

A Study of the Prostate and Treatment of Prostatic Hypertrophy.

Dr. G. Wiley Broome, St. Louis, concluded that: 1. The normal position of the urethra is in the floor of the bladder; in urinary obstruction it is always elevated from one to two inches above the floor. 2. Normally, there is no third lobe; but segmentation takes place behind the prostatic fissure in consequence of a hyperplastic process, this process occurring in the direction of least resistance—into the cavity of the bladder. 3. In only a small percentage of cases is a hypertrophied prostate responsible for urinary obstruction. 4. No matter how large the prostate becomes, it will retain its functionating capacity. It is not the organ which causes suffering. 5. By prostatectomy this functionating organ is mutilated or destroyed, and the bladder, which really causes the patient trouble, is left *in situ* without any operation on it. 6. In only a small percentage of cases can the prostate be enucleated. 7. Routine prostatectomy for urinary obstruction is wrong. 8. The commissure and capsule are obliterated in the fibromyomatous variety of prostate. In the adenomatous variety, if complete and permanent drainage is established, the prostate will shrink.

DISCUSSION.

DR. C. H. MAYO, Rochester, Minn., said he had operated by the median perineal method in over thirty cases by the Goodfellow technic, and had been much pleased with the method and results.

DR. W. P. CARR, Washington, D. C., had seen only one case in which there was any difficulty in peeling the prostate out of its capsule. Prostatectomy in healthy men has a very small mortality; but when an infected bladder, Bright's disease or atheromatous arteries exist, it is a serious operation.

Edematous Encephalitis.

DR. W. P. CARR, Washington, D. C., called attention to a brain condition frequently encountered when operating for cerebral epilepsy and for suspected cerebral abscess following postgrippal mastoid disease. Drainage gave much benefit. He reported four cases. It is impossible to say, in most cases, whether the edematous encephalitis is caused by injury or by the influenza poison, or whether it is a lesion of epilepsy. He had found no cases in the literature in which edema was noted as a marked feature. In cases of severe cerebral symptoms following influenza or blows on the head, if the symptoms persisted or became worse after weeks of medical treatment, he thought exploration justifiable.

After making an osteoplastic flap, if there is an edematous appearance, a grooved director should be introduced into the brain substance carefully in several places, and the serum drained off until the brain assumed a normal appearance. A small soft drainage tube should be inserted into the arachnoid space and left while a copious discharge of serum continued.

DISCUSSION.

DR. C. H. MAYO said that he and his brother had operated on many cases of epilepsy and traumatic insanity, and he could corroborate what the essayist had said regarding edematous encephalitis. Drainage is the best treatment.

A New Device and Method for Intestinal Anastomosis.

DR. W. P. CARR also presented a method of intestinal union by small silver clamps; he thought it easier, quicker and more free from objectional features than the Murphy button. The inverted edges of the gut are clamped from the inside. He had used the clamps on one man who recovered.

DISCUSSION.

DR. I. S. STONE, Washington, D. C., discussed cases of retention of the Murphy button, and announced his intention to try Dr. Carr's device.

DR. GUY L. HUNNER, Baltimore, and DR. J. GARLAND SHERRILL, Louisville, Ky., advocated suturing in preference to all mechanical devices.

The Surgical Physiology of the Lymphatic System.

DR. C. H. MAYO, Rochester, Minn., said that a study of the lymphatic system readily explained many normal physiologic as well as pathologic processes. The subject is deservedly receiving more attention from surgeons. The system is constantly engaged in maintaining nutrition as well as defense against pathologic processes. He described the struggle in glands between infection and leucocytes. The interior of the brain is deficient in lymphatics, the arachnoid serving this purpose on the surface. Hemorrhages into its structure become cysts from lack of absorption, and infections cause little temperature or general disturbance except from pressure. The liver and kidney show the same condition in a less marked degree. The lungs, rich in lymphatics, give constant temperature from infectious diseases. Chills usually signified the direct delivery of accumulations of infection into a vein. There is, therefore, a real principle involved in drainage, whether it be internal or external. He classified drainage thus: 1. Rest by splints, pressure, dressing or bed, to quiet the circulation. 2. Elevation to reduce arterial supply and favor venous and lymphatic return. 3. Massage to break up coagulated exudates and enable the lymph vessels to remove the exuded material. 4. Moist dressings favor the escape of exudate from open wounds and also favor the lymphatic circulation in closed injuries. 5. Adjuncts to drainage in the use of solutions having affinity for moisture acting by osmosis, as glycerin or alcohol. 6. Wound drainage by the open method with or without secondary suture. 7. Incision. 8. Wicks, gauze, etc., as mechanical aids.

Early Diagnosis of Cancer of the Uterus.

DR. F. F. SIMPSON, Pittsburg, Pa., said that to the average practitioner cancer is rare compared with other afflictions, but as a cause of death its frequency is appalling. Statistics show that 1 out of every 14 people who reach the age of 30 dies of cancer. Out of every 28 women who pass the age of 30 cancer kills 1. The paper was largely statistical, and the author closed by predicting that well-informed women of the cancer age would seek protection by regular quarterly examinations. Early diagnosis would then be the rule in cancer of the uterus, as it is now in appendicitis.

Fracture-Dislocation of the Spine.

DR. J. SHELTON HORSLEY, Richmond, Va., reviewed the authorities and called attention to the fact that without an operation or a postmortem it was impossible to tell by symptoms alone whether the cord was completely destroyed. He advocated the plan of McCosh, to operate in all cases of complete paralysis below the injury unless there was improvement within twenty-four hours. The danger of delay lies in degenerative changes in the spinal cord which set in soon after the injury. Early operation might arrest this degeneration. He reported six cases.

(To be continued.)

Therapeutics.

[Our readers are invited to send favorite prescriptions or outlines of treatment, such as have been tried and found useful, for publication in these columns. The writer's name must be attached, but it will be published or omitted as he may prefer. It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Bronchorrhea.

In bronchorrhea the following combinations are recommended by Danforth in *Amer. Text-Book of Applied Ther.*:

R. Copaibæ	gtt. xx	1|30
Pulv. opii	gr. ii	12
Pulv. acaciæ q. s.		

M. Ft. capsulæ No. x. Sig.: One every three hours; or:

R. Copaibæ	gr. xx	1|30
Acidi gallici	gr. xxx	2
Pulv. acaciæ q. s.		

M. Ft. cap. No. x. Sig.: One every three hours.

Amebic Dysentery.

Amebic dysentery can be cured, according to S. G. Gant, in *Amer. Med.*, by medication through the bowel alone. During the first week the bowel is irrigated daily through a long colon tube with a solution containing grains thirty (2.00) of silver nitrate to the pint of water. During the second week grains twenty (1.30), the third week grains ten (.65) are used and continued for the next two weeks, alternating with the following emulsion given per rectum:

℞.	Iodoformi	ʒii	8
	Bismuthi subnitratis	ʒiv	15
	Olei olivæ	Oi	500

M. Sig.: To be used as an injection by the bowel once daily.

The silver solution is then stopped and the emulsion alternated with the following combination:

℞.	Sodii biboratis	ʒii	8
	Ext. krameriæ fl.	ʒiv	120

M. Sig.: Two tablespoonfuls to be added to a pint of water and injected by the bowel once daily. For a week the diet should consist of large quantities of unsalted butter and baked potatoes. The patient may at the end of this period be given a chop, unsalted butter, baked potatoes, eggs and milk.

Pruritus Vulvæ.

The following combinations are recommended by Beall, in *Merck's Archives*, in the treatment of pruritus of the vulva:

℞.	Menthol	gr. iv	.25
	Quininæ sulph.	gr. x	.65
	Acidi carbol.	gr. xii	.75
	Ung. hydrarg. nitratis	ʒss	2
	Ichthyol	ʒi	4
	Liq. petrolati	ʒiii	12
	Ol. ricini	ʒv	20

M. Sig.: Apply freely after washing the parts with hot water; or:

℞.	Cocainæ hydrochlor.	gr. v	.30
	Tinct. eucalypti	gtt. xlv	3
	Chloralis hydratis	gr. xxxv	2.30
	Aquæ destil. q. s. ad	ʒiv	120

M. Sig.: Apply as necessary to stop the itching.

Acute Bronchial Catarrh.

There is no remedy, according to Yeo, in his *Clin. Ther.*, which so readily relieves the distressing dryness of the mucous membrane in the early stages of acute bronchitis as does tartarized antimony. He recommends it combined with small doses of morphin, codein or opium as follows:

℞.	Vini antimonialis	ʒss	6
	Liquoris morph. acetatis	ʒss	2
	Liq. ammonii acetatis	ʒiss	45
	Aq. laurocerasi	ʒii	8
	Syrupi simp.	ʒiii	12
	Aquæ q. s. ad	ʒvi	180

M. Ft. mistura. Sig.: Two tablespoonfuls every three or four hours.

The following combination is sometimes used by the author as a substitute for the foregoing prescription:

℞.	Pulv. opii et ipecacuanhæ	gr. v-x	.30-.65
	Spts. etheris nitrosi	ʒi	4
	Liq. ammon. acetatis	ʒiii	12
	Aq. camphoræ	ʒiss	45

M. Sig.: At one dose, to be taken at bedtime, followed the next morning by a saline purgative.

When fever is present the following is of great value:

℞.	Tinct. aconiti	m. xxiv	1.65
	Vini antimonialis	ʒii	8
	Liq. morph. acetatis	m. xl	2.65
	Liq. ammon. acetatis	ʒiss	45
	Aq. camphoræ q. s. ad	ʒviii	240

M. Ft. mistura. Sig.: Two tablespoonfuls every two or three hours.

It should be kept in mind, however, when opium, antimony and aconite, or similar preparations are given, that they should be discontinued when the definite symptoms for which they are given have disappeared.

As a stimulating expectorant the following combination is recommended:

℞.	Infusi senegæ	ʒiii	90
	Sodii bicarb.	ʒi	4
	Sodii chloridi		
	Ammon. carb., āā	gr. xxiv	2.65
	Syr. tolutani	ʒiii	12
	Aquæ q. s. ad	ʒvi	180

M. Ft. mistura. Sig.: Two tablespoonfuls every six hours.

Dr. N. S. Davis recommends the following mixture in acute bronchitis:

℞.	Tinct. veratri viridis	ʒiss	6
	Vini antimonii	ʒiv	24
	Tinct. opii camph.	ʒiiss	75
	Liq. ammon. acetatis	ʒii	60

M. Ft. mistura. Sig.: One teaspoonful in a tablespoonful of water every two, three or four hours.

℞.	Ammon. carb.	gr. xxx	2
	Tinct. hyoscyami	ʒiv	15
	Codeinæ	gr. ii	12
	Syr. pruni virg.	ʒiv	15
	Aquæ camphoræ q. s. ad	ʒii	60

M. Sig.: One teaspoonful every three hours.

E. Fletcher Ingals recommends the following combination to relieve the cough:

℞.	Ext. cannabis indicæ	gr. ⅛	.008
	Ext. hyoscyami	gr. ss-i	.03-.06
	Ext. nucis vom.	gr. ⅛-ss	.015-.03
	Quininæ hydrobrom.	gr. i-ii	.06-.12
	Camphoræ monobrom.	gr. ii-iii	.12-.20

M. Ft. capsulæ No. i. Sig.: One such capsule every four to six hours; or:

℞.	Morphinæ sulph.	gr. i	.06
	Ammon. carb.	gr. xxx-ʒi	2-4
	Syr. pruni virg.		
	Mist. glycyrrhizæ co., āā	ʒiv	15

M. Sig.: One teaspoonful in water and repeat as necessary.

He condemns the use of morphin in the capillary form of bronchitis except in very small doses. Ammonium chlorid or ammonium carbonate are useful preparations in this form of bronchitis; or a combination of the carbonate and iodid is of value:

℞.	Ammon. carb.	ʒii	8
	Ammon. iodid.	ʒiii	12
	Syr. glycyrrhizæ		
	Syr. tolutani, āā	ʒii	60

M. Ft. mistura. Sig.: One teaspoonful every two or three hours in water.

Stevens, in *Med. Rev. of Reviews*, recommends the following treatment of acute bronchitis:

℞.	Terebeni		
	Ol. eucalypti, āā	ʒss	2
	Strych. sulph.	gr. 1/3	.02
	Codeinæ sulph.	gr. iii	.20

M. Ft. capsulæ No. xii. Sig.: One capsule every four hours.

The following is recommended by De Brun in the treatment of chronic bronchitis:

℞.	Ichthyol	gr. xxx	2
	Glycerini		
	Syr. aurantii, āā	ʒiv	15
	Aquæ	ʒiii	90

M. Sig.: One half to one teaspoonful several times daily.

Acute Peritonsillitis.

Shurley, in his "Dis. of Throat and Nose," recommends, in the treatment of acute peritonsillitis, that the patient be given a brisk cathartic, either mercurial or saline in conjunction with hot bathing. Ice should be applied externally and the patient should be instructed to hold bits of ice in the mouth. Local applications by means of spray or pigment of turpentine or carbolic acid and glycerin or insufflations of iodoform are recommended. He advises, however, hot applications locally after the disease has become well established, in order to favor suppuration. Applications of steam to the throat or hot gargles of slippery elm tea will promote suppuration; the pain is so severe as a rule, however, that the attempt at gargling will produce harm rather than good. Throughout the course of the disease a spray of a 2 to 4 per cent. solution of cocain will be of great value in relieving the intense suffering of the

patient. When suppuration has taken place opening the abscess is in order, first locating, if possible, the seat of the pus by introducing the finger into the pharynx.

E. F. Ingals states that the disease may be aborted in about one case in four by applying to the inflamed gland once or twice a day a solution of silver nitrate, gr. 60 (4.00) to the ounce (30.00), two or three applications usually being sufficient. The value of local applications of guaiacol should be emphasized in the treatment of this painful condition, applied at any stage of the disease, with the assurance that excellent results will be obtained, as in almost every case the swelling becomes reduced and the patient will be enabled, after one or two applications, to open the mouth wider and with less pain, and he will also be able to take nourishment, which may not have been done previously on account of the extreme pain. Guaiacol should be applied by the physician himself, taking care not to let any of the solution drop into the pharynx or larynx. The following strength solution should be applied at first, and the strength gradually reduced as the patient improves:

℞. Guaiacol		
Olei olivæ, aa	℥ii	8

M. Sig.: Apply locally, by means of a cotton swab, twice daily.

Internally the tincture of aconite or tincture of opium may be given in small and oft-repeated doses and less frequently as the subjective symptoms subside. Codein in doses of gr. 1/3 (.02) to 1/2 (.03) is of service, repeated every three hours in order to relieve the pain and allow the patient to sleep.

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Nutritive Enema.

The following formula is recommended by *Rev. francaise de Méd. et de Chir.* as a suitable combination for nutrient enemas:

℞. Liq. peptones	℥ii	60
Eggs, 1 to 3.		
Sol. glucose (20 per cent.)	℥iii	90
Sodii chloridi	gr. xxiiss	1 50
Pulv. pepsini	gr. viiss	50
Tinct. opii	gtt. iii	20
Bouillon	℥vi	180

M. Sig.: For one enema.

Chronic Orchitis and Traumatic Inflammations.

The following has been recommended in the treatment of such cases of orchitis as have become chronic, also of inflammatory conditions arising from traumatism:

℞. Ichthyol	℥ii	8
Plumbi iodidi	gr. xv	1
Ammon. chloridi	gr. xxx	2
Liq. petrolati	℥ii	60

M. Sig.: Apply locally on lint.

Treatment of Puerperal Infection.

The treatment of puerperal infection does not differ essentially from the treatment of sepsis from a surgical operation, according to J. H. Burtenshaw, in *Internat. Med. Magazine.* The treatment, according to this author, should consist in: 1, removing the source of infection; 2, neutralizing the effects of the septic germs or their toxins; supporting the patient's vitality. He condemns the use of the sharp curette in relieving the uterus of its contents, preferring the finger or a dull wire curette in order not to abrade the endometrium. Lacerations of the vaginal walls and cervix should be cauterized with pure carbolic acid and the cavity of the uterus and the vagina should be irrigated with two gallons or more of normal saline solution or a 1 per cent. solution of lysol, after which these cavities should be packed with iodoform gauze and replaced by a similar packing after twenty-four hours. After removing the second packing the uterus should be left alone. He prefers the iodoform to alcohol or formalin tampons. A suppository containing fifteen (1.00) grains of iodoform may be introduced into the uterus, followed by a packing of plain sterilized gauze, and repeat once the following day. In his opinion the value of continuous irrigation in these cases is overestimated because of the fact that the pathogenic organisms are situated too deeply in the tissues.

To neutralize the effects produced by the germs or their toxins, elimination must be promoted by careful attention to the bowels and kidneys. The saline solution is of value in aiding elimination. In puerperal sepsis, especially, does the protoplasm of the leucocytes show marked affinity for iodin, consequently the author recommends Pryor's method of opening the posterior cul-de-sac and packing the pelvic cavity with a 10 per cent. iodoform gauze. The value of unguentum Credé, in the author's experience, is very limited in the treatment of puerperal sepsis.

To support the patient the diet must necessarily be nourishing, and at the same time concentrated, consisting of peptonized milk, malted milk, egg albumin, calvesfoot jelly, meat extracts, and later, when the temperature has fallen, the patient should be given alcohol as a food. In the way of medicines he recommends ergot, strychnia nitrate from the commencement of the attack. The temperature should be controlled with tepid or cold sponging followed by an alcohol rub and repeated as necessary.

Medicolegal.

No Damages Recoverable for Bodily Disfigurement.—The Branch Appellate Court of the First District of Illinois holds, in Lake Street Elevated Railroad Company vs. Gormley, that the marring of personal appearance and humiliation from contemplation of bodily disfigurement are not elements entering into the computation of pecuniary damages for personal injuries sustained by reason of alleged negligence.

Eleven Thousand Dollars Damages Allowed for Rupture.—The Appellate Court of Illinois for the First District holds, in City of Chicago vs. Gillett, that a judgment for $11,000 damages should not be disturbed because of its amount where a man 44 years of age who had been earning $70 to $75 a month sustained a severe rupture from falling through a defective sidewalk, the evidence showing that the rupture was in the neighborhood of 22 inches around, had caused suffering day and night during the two years and a half up to the time of the trial, that it had to be supported by a leathern bag or pouch, incapacitated him for manual labor of any consequence, was entirely irreducible, and was likely to grow worse.

Casualty Company Not Liable—Death from Eating Unsound Oysters.—The Supreme Court of Texas, in the case of the Maryland Casualty Company vs. Hudgins, takes a different view from that of the Court of Civil Appeals, reported on page 1395 of THE JOURNAL, May 16, 1903, of the construction to be placed on a policy of accident insurance which provided that it did not cover "injuries, fatal or otherwise, resulting from poison, or anything accidentally or otherwise taken, administered, absorbed, or inhaled," the insured having died from eating unsound oysters. It holds that the plain meaning of the language used was that the company accepted from its liability all injuries which might arise from whatever thing of any kind or character, poisonous or not, the insured might voluntarily and consciously take into his stomach—that is, to swallow as food or drink; that the death of the insured was caused by means within the exception from liability contained in the contract of insurance, and that no cause of action was or could be shown against the company on that contract. As to the claim that, while the eating of the oysters was not accidental, the eating of spoiled oysters was accidental because the insured did not intend to eat unsound oysters—the accident consisting in the state of the thing swallowed, the Supreme Court pronounces that a shadowy distinction. But, admitting it to be sound, it says that it did not take the case out of the exception; for the spoiled oysters was a thing, it was "taken," from which the injury resulted, which brought the case under the exception, and took it out of the obligation of the contract.

Qualification Presumed—Right to Sue for Services.—The Appellate Court of Illinois for the Second District says, on the appeal of the County of Jo Daviess vs. Staples and others, an action brought by the latter to recover for the perform-

ance of a surgical operation on a resident of East Dubuque, Ill., taken therefor to a hospital in Dubuque, Iowa, that it was averred that the parties suing were "legally qualified to practice medicine and surgery at the time when and place where said services were rendered." As just stated, the services were rendered in Iowa. There was no proof whether the statutes of Iowa required any license to entitle a person to practice medicine and surgery in that state, or prescribed any prior test of any kind, nor that the parties suing had taken out any such license or complied with any such requirement. On the part of the county it was insisted that for failure to prove that allegation the verdict rendered for the parties suing could not stand. But the Appellate Court holds otherwise. It says that this question was not raised in any manner in the court below. A plea of tender which was made was an admission of the parties' right to sue for the sum tendered. While it was held in City of Chicago vs. Honey, 10 Ill. App. 535, that in this state an unlicensed physician can not recover fees for his professional services, yet the current of judicial decision in this state appears to be that in a suit for such services a license or due qualification under the law will be presumed. But the laws of Iowa were not proved, and in the absence of proof it is presumed that the common law prevails in a sister state. At common law a surgeon could recover for his services. In Chitty on Contracts, 11th Am. Ed. 836, it is said: "Where there is no restraint imposed by statute, physicians and surgeons in the American states have the same right as others to the benefit of that great principle of the common law that when services are performed on request, and no special agreement is made in reference to them, the law raises an implied promise to pay so much as the person performing them deserves to have, and an action lies on such promise."

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

December 29.

1 *The Finsen Light and Roentgen Rays in the Treatment of Diseases of the Skin. Jay F. Schamberg.
2 *The Diagnosis of Trichiniasis. William F. Cheney.
3 Perforated Gastric and Duodenal Ulcers; with a Report of Four Cases Operated On. John H. Gibbon.
4 *The Influence of the Municipal Milk Supply on the Deaths of Young Children. George W. Goler.
5 *Indications for Operations on the Gall Bladder and Bile Ducts. Randolph Winslow.
6 *The Recent Epidemic of Smallpox in California. Daniel Crosby.

1. **Finsen and X-Ray Therapy.**—Schamberg finishes his paper with the following conclusions:

1. The Finsen light is generally recognized as constituting the best known treatment for lupus vulgaris. It is necessary to employ the large lamp used by Finsen. The smaller modified lamps may suffice for recent and superficial cases, but do not produce sufficient penetration of light to cure long-standing and deep-seated lesions.

2. In lupus erythematosus the Finsen light, in our hands, has effected some improvement but no cures. Cases exhibiting telangiectases and but little thickening of the skin, showed the most improvement.

3. In certain cases of lupus vulgaris the Röntgen rays give most gratifying results. This method of treatment is to be given preference over the Finsen light when the lupus nodules are ulcerated, when the mucous membrane of the nose, lips, or mouth is affected, and probably also in hypertrophic and vegetative forms of the disease.

4. The Röntgen rays have certain distinct limitations in the treatment of cancer of the skin. The rays will cure practically all patients having superficial cancer, and some with carcinoma of the integument. But the majority of deep-seated cutaneous and subcutaneous growths do not do well. They may improve for a while and deceive both the patient and the physician, but relapse, and subsequent spreading is common. Buccal epitheliomas and deep-seated epitheliomas involving the lip, had better be treated surgically and subsequently subjected to radiotherapy. The Röntgen rays find a splendid field of usefulness in superficial epitheliomas about the eyelids and the nasal alæ, and in rodent ulcers that are surgically inaccessible. Superficial epitheliomas may be cured by many methods, but none gives such beautiful cosmetic results as the Röntgen rays.

5. The Röntgen rays are extremely valuable in acne, in which disease the most brilliant results are obtained, even in long-standing cases.

6. The Röntgen rays are of value in many cases of eczema, both in relieving the itching and in effecting a disappearance of the eruption. The rays have proved of great benefit in recurrent vesicular eczemas of the hands and feet.

7. In psoriasis, the effect of the Röntgen rays is but temporary, and relapses are not less common than under other methods of treatment.

8. The Röntgen rays find a large field of usefulness in dermatologic practice. In addition to the dermatoses mentioned, the rays have been found to be beneficial in sycosis, lichen planus, hypertrichosis, ringworm and favus of hairy regions, tuberculosis of the skin, mycosis fungoides, blastomycetic dermatitis, localized pruritus, etc.

9. In the treatment of diseases of the skin the liability to the production of a burn, with ordinary precautionary measures, is extremely slight.

2. **Trichiniasis.**—Cheney reports a case in which the diagnosis was obscure, most of the findings being negative. There was a general myositis with continued fever, moderate leucocytosis and diazo reaction in the urine. He reviews the prominent features of the case. There was no history of acute onset such as one would expect. A differential count of white corpuscles was made, showing 70 per cent. of polymorphonuclears; 8 per cent. of large lymphocytes; 12 per cent. of small lymphocytes and eosinophiles 10 per cent. There was thus a decided increase in the eosinophiles above normal, though the percentage was not so high as in some of the cases reported by previous observers. The addition of eosinophilia to the previous findings seemed to make the diagnosis positive. Further investigation of the muscle tissues showed trichinæ very clearly present, a fact which can never mean anything else but trichiniasis. Eosinophilia occurs in other conditions, though all these vary so widely from the clinical picture of trichiniasis that practically no difficulty is offered in differential diagnosis. The condition thus becomes one of the most easily diagnosed diseases, provided its peculiar features are borne in mind. The patient did not think she had eaten any pork, and the history was decidedly negative.

4.—See abstract in THE JOURNAL, xli, p. 1107.

5. **Biliary Surgery.**—The object of Winslow's paper is stated to be to call attention to the frequency of lesions of the bile passages and the serious effects resulting from their neglect. He would not resort to laparotomy at the onset of every attack of pain in the gall-bladder region, but the existence of repeated paroxysms, persistent or recurring jaundice and a condition of tenderness or distress are serious signs and should not be allowed to continue indefinitely. The difficulty and danger of operation increase in proportion to the length of time, and when a fair trial of internal treatment fails, operative measures should be resorted to without delay.

6. **Smallpox in California.**—Crosby describes the peculiarities of the recent epidemic of smallpox, its mildness, rapidity of evolution and the fact that quite a large proportion of cases responded to successful vaccination after convalescence. Typical pustules and secondary fever were absent, as also pitting and the usual sequelæ. The diagnosis of smallpox, however, is based on the occurrence of some exceptionally severe cases at all points where the epidemic existed, with some fatalities.

Boston Medical and Surgical Journal.

December 31.

7 *Malaria and Mosquitoes of Worcester. A Year's Observations on the Habits of Culex and Anopheles. (To be continued.) William W. McKibben.
8 *Some Cases of Facial Erysipelas from Erosions of the Nasal Septum. John W. Farlow.
9 A Case of Gumma of the Fallopian Tube. George S. Whiteside.
10 *The Indol of the Feces as a Measure of Putrefactive Processes in the Intestines. A. E. Austin.
11 *Was He Insane? A Study in Mental Diagnosis. (Concluded.) C. A. Drew.

7. **Malaria.**—McKibben gives the history of the introduction of malaria into Worcester by Italian laborers and returned soldiers, and of the epidemic that occurred there.

8. **Erysipelas.**—Farlow calls attention to a probably overlooked cause of so-called idiopathic empyema, namely, erosion of the nasal septum, and reports cases where this probably existed. The treatment of the nose seemed to be an important factor in the suppression of the attacks.

10. **Intestinal Putrefaction.**—Austin has investigated the indol contents of feces as an index of intestinal putrefaction. He remarks that the amount of indol found is vastly greater than that found by Baumstark, who regarded 17 mgms. as the

average normal quantity, and the largest amount he discovered in pathologic conditions was 114 mgms. The analysis of Austin, however, ranged from 22 to 260 mgms. He thinks it is possible that the larger amount was due to the fact that skatol was reckoned with it. As to the purity there can be no question, both from the methods by which they were obtained, excluding all other products, their well-defined crystalline form and the response of indol to Legal's reaction.

11. **Querulant Insanity (?).**—Drew finishes an interesting account of a case of moral depravity and suspected moral insanity which, he concludes, was not properly insanity. The condition, he thinks, hardly comes within the legal conception of insanity.

Medical Record, New York.
December 19.

12 *Leprosy in Hawaii. James T. Wayson.
13 *The Diagnosis and Treatment of Intussusception, with a Report of Four Cases. Henry Roth.
14 *An Unappreciated Source of Typhoid Infection. F. B. Barringer.
15 *Points to Be Observed by the Family of a Tuberculous Patient. C. P. Ambler.

12. **Leprosy in Hawaii.**—According to Wayson leprosy was not introduced into Hawaii by Chinese, but probably came from the South Sea Islands some time before. He thinks that a markedly syphilized race is especially likely to lepra infection, probably carried by spores not yet found. He describes the Molokai asylum, and suggests the probability of its having to be made a national asylum, and refutes the objections made to this course.

13. **Intussusception.**—Beside reporting cases, Roth discusses the literature at considerable length. He believes that intussusception in children may and should be diagnosed early. The characteristic symptoms are marked, and if the disease is borne in mind it is almost impossible to fail to recognize it. He believes in operation as the only practical treatment. Injection and inflation are unscientific and dangerous. If the case is seen early enough and reduction by mechanical means attempted, all preparations should be made for an aseptic and rapid laparotomy. Attempt at reduction by pulling on the bowel is very dangerous; it is best done by pressing on the apex of the intussusception through the ensheathing gut. In early cases reduction will readily be accomplished. In desperate or gangrenous cases resection may be required, with entero-anastomosis or an artificial anus, leaving the intussusception unrelieved to take care of itself. Entero-anastomosis has not the advantages of complete or partial resection.

14. **Typhoid Infection.**—The danger to the traveling public from the common arrangements on the cars, where infected feces are dropped along the railroad tracks to be scattered in the form of dust, is especially noted by Barringer. He found that in railroad hospitals a great majority of the typhoid cases are track men, who are not exposed to the dangers of water-borne infection. The people who work along the track are not the only ones liable to danger. Those traveling on the train, especially on the rear cars, also suffer serious risks of infection. The remedy, he thinks, lies in retention closets which can be cleaned at the end of the trips.

15. **Tuberculosis.**—Ambler enumerates the precautions which the tuberculous patient should observe to avoid danger to others, namely, proper deposit of expectoration, thorough cleansing by boiling in water all the eating and drinking utensils used by him, the avoidance of kissing and coughing as far as possible. Tuberculous patients should not be employed in markets where foodstuffs are sold, and should not handle or prepare food for the family. The room occupied by them should be so arranged that the dust floating in the air can be kept at a minimum, without carpets or rugs, and well ventilated. Wounds and abrasions should be looked after, and small children crawling on the carpets should be especially cared for. The patient should avoid public halls and meeting places.

New York Medical Journal.
December 19.

16 *On the Etiology of Pulmonary Tuberculosis in Its Relation to Diseases of the Nose and Throat. W. Freudenthal.
17 *Remarks on Mechanotherapy, Massage, Bone Setting and Osteopathy. John Madison Taylor.
18 *On the Natural Habitat of the Tubercle Bacillus. J. W. Kime.
19 *A Method of Rapid Extirpation of Nasopharyngeal Fibromata, with Report of Cases. Gordon King.
20 *Things Every Tuberculous Patient Should Know. Martin L. Stevens.
21 *The Genesis and Nature of Medicinal Dioxides. Friederich Elias.

16. **Tuberculosis.**—The importance of the conditions of the nasal passages in the etiology of tuberculosis is pointed out by Freudenthal, who refers to a former article. He especially considers that atrophic rhinitis through the too free passage of air through the nasal channels causes a lodgment of the tubercle bacilli in the back of the pharynx, where they have an excellent chance to develop and introduce themselves into the system. A rhinitis sicca, or even more atrophic rhinitis, unfits the nose entirely for respiration. Adenoids also favor the lodging of bacilli in the pharynx and their passage thence into the lymph current. He thinks that glandular swellings of the neck have become less frequent since adenoids have been so freely removed. If the path of the tubercle bacillus downward is closed up by adenoids, it may make its way to the cranial cavity and produce tuberculous meningitis. He tabulates a number of cases of consumption with particular attention not only to the condition of the nose, but also of the teeth, with special reference to the dry and atrophic conditions produced by our methods of heating in this climate. If we want to treat the consumptive rationally, he concludes, we must begin at the upper air tract.

17. **Mechanotherapy.**—Taylor points out the importance of massage, mechanotherapy, bone setting, etc., and the practice of osteopathy. He thinks the profession has become too critical in regard to drugs, and the public has followed its example, and takes up the more readily with charlatans, who claim to cure without them. Moreover, there are comparatively few of the medical profession who have familiarised themselves with massage and mechanotherapy generally. Our schools of massage are entirely superficial in their training. The European masseur finds our physicians unable to appreciate his skill, hence his attempt to get into independent practice, and the prejudice and rivalry aroused against him. Taylor claims that the field of mechanotherapy is boundless, and it is the duty of the educated physician to learn more of it. He thinks if the medical profession would read half a score of small books thoroughly (after revising their knowledge of the nervous mechanisms) and make practical use of the light thus gained, they would feel little hesitation in going forward to acquire skill in so practical and valuable a branch of therapeutics. The physician can not devote the time required by some of the more laborious and continuous, or routine procedures, but he should supervise the scientific part. He could and should make use of the more delicate manipulations, which are of the greatest value. To illustrate the teachings of the osteopathic schools, he mentions two graduates of Scandinavian massage institutions who came to this country and hearing of osteopathy took a course at Kirksville. Both assured the author that they learned no facts of importance not already known to them. The sphere of manual therapy lies in the ability of medical practitioners to influence centers of organic activity by mechanical stimulation through the vasomotor nerves. They should not abandon well-tried and proven remedies, but in manual therapy, when applied by the physician, there is a prompt and exact method far in advance of all others in the treatment of a wide variety of derangements, not only of the coarser mechanisms, but also of the vital organs.

18. **The Tubercle Bacillus.**—Kime reviews the habitat of various pathogenic parasites, and claims that the natural habitat of the tubercle bacillus is in the cow. He says the conclusion forces itself on us, even from Koch's own experiments, that the cow furnishes the type of soil and tissue best adapted to the production of virulent tubercle bacilli, and the more immediate the transference of tuberculosis from cow to man, the more deadly it becomes, and the more readily it may be transferred back, while cultures many generations removed

from the cow lose much of their virulence, and are comparatively mild in their effects.

19. **Nasopharyngeal Fibromata.**—The method of treatment of these growths is discussed in general, and King describes a method which he thinks is more quick and effective than others. He makes a high tracheotomy under chloroform anesthesia and inserts a tube. Then with the patient in the Rose position, the head supported by an assistant, and the mouth gag in place, the index and little [middle?] finger of the left hand are introduced into the nasopharynx to ascertain carefully the outlines of the tumor and the position and extent of its implantation. This is of great importance, for as soon as the size and point of origin of the pedicle are made out, the fingers serve as a guide for the insertion of a pair of scissors into the nose on the side most accessible to the pedicle. Scissors are a strong pair, with long handles and short blunt blades, slightly curved on the flat. The long handles offer a strong leverage, so that the toughest tissue can be cut through. The closed blades are introduced carefully along the septum until the point can be felt in the nasopharynx. The instrument is guided by the fingers to the pedicle. With the convexity of the blade uppermost the pedicle is vigorously attacked and divided. As soon as it is felt detached, it can be drawn out by the fingers through the mouth and immediate attention given to checking the flow of blood which gushes copiously from the moment the first cut is made. The use of a gauze pack aided by the natural tendency to spontaneous arrest will check the bleeding in a very short time. The head can then be brought to a level with the table, and if it is made certain that none of the body of the growth remains behind, the tracheal tube can be removed and the wound closed. In this manner the bulk of the growth at least can be removed. If hemorrhage has been excessive the patient should be allowed a few days to recuperate before being subjected to further operation for the complete removal of what may remain behind. Not much time, however, should be lost in attacking the root of the tumor. It should be examined closely by anterior and posterior rhinoscopy. Remaining fragments can be removed under light with snare, cutting forceps or scissors, or destroyed by the use of cautery without further danger of serious hemorrhage. In view of the tendency to recurrence great care should be taken to extirpate as completely as possible and the patient kept under observation for several weeks for new developments. He reports three cases, with details, in which this operation was performed.

20. **What the Tuberculous Patient Should Know.**—Stevens insists on the tuberculous patient coughing into a handkerchief, not coughing at all in the dining-room, never swallowing the expectoration, using an antiseptic mouth wash before each meal, and the careful cleansing of the hands, avoiding talking if it increases the cough, avoiding spitting into anything excepting a proper sputum receptacle, the thorough disinfection of whatever is soiled by the sputum, abstinence from kissing, taking exercise only under direction and none of a sporting character, taking none if the temperature is abnormal, if there is blood in the sputum or if losing in weight. Always stop before becoming tired, never run or get out of breath and never lift or strain, avoid breathing exercises except those as specifically directed. If the temperature reaches 100 lie down, and if it reaches 101 undress and go to bed in earnest. Spend ten hours in bed each night, and retire early enough to finish your sleep before sunrise. Spend all the time possible in the open air. Keep the windows of the sleeping room open. Protect the head from the direct rays of the sun when taking outdoor rest cure, avoid dust, draughts, crowded and poorly ventilated rooms, and if you catch cold report at once to the physician. If the digestion is good, use a generous mixed diet, taking no food between meals. Forced feeding, if necessary, must be under the direction of a physician. It is not the quantity eaten, but the quantity digested or assimilated that benefits. If not on a full diet, a light luncheon of milk and crackers, malted milk or raw egg should be taken regularly two or three hours after each meal, taking no food within less than two hours of a regular meal. Do not drink milk hastily. Sip it, eating something at the same time. Regularity of meals is essential. Take only such medicines as are prescribed and stop any that disturb the stomach; beware of sleep producers. Throw away any medicines that have been ordered discontinued. The clothing should be adapted to the individual; avoid chilling and overheating; wear nothing that interferes with respiration. Use sensible footwear, and no chest protectors. Unless there is special reason for not doing it, a cold sponge bath or shower bath should be taken each morning, and a full warm bath only once a week, rubbing the skin well with a course towel after the shower or sponge bath. Omit the cold baths during a pleurisy, or after a night sweat, or if the morning temperature is below 97 F., using a dry rub instead. Alcohol, if prescribed in exceptional cases, should be used the same as medicine and with the same care as to dose and time as with other medicines. Smoking should not be indulged in, and chewing should be condemned for sanitary reasons, because it increases the tendency to expectoration. Co-operate with the medical advisor, make a business of getting well. Do not take too many suggestions from outsiders. The less one knows of a subject the more ready he is to advise. Avoid self-experimentation. Do not discuss your symptoms with other patients. If you do not trust your physician, change him.

21. **Magnesium Dioxid.**—This substance, which is also known as biogen, and zinc oxid, known as dermogen, seems to have a special power of giving ont oxygen, and Elias discusses their action. He thinks the pronounced benefit resulting from magnesium dioxid is entirely due to its oxygen quality, and not to its residual magnesium hydroxid. The increased heart action, the rapid elimination of waste products, accelerated tissue oxidation and destruction of pathogenic micro-organisms, all point to the conclusion that it is the oxygen to which these results must be attributed, and not to the magnesium. The latter is an indifferent substance, almost entirely recoverable in the excreta. The utility of magnesium dioxid when introduced into the system, he says, is evidenced by the marked improvement and rapid subjective symptoms induced. This is explained by the fact that an oxygen carrier such as magnesium dioxid breaks down when administered internally and liberates a more active and less irritating gas than oxygen which may be generated by other means.

Cincinnati Lancet-Clinic.

December 19.

22 Anatomy of the Inguinal Region in Its Relation to Inguinal Hernia. W. E. Lewis.
23 The Finsen Light Cure. H. John Stewart.
24 Surgery of the Prostate, Pancreas, Diaphragm, Spleen and Thyroid. (Continued.) B. Merrill Ricketts.

St. Louis Medical Review.

December 18.

25 Presentation of Specimen of Radium with Suggestions as to Its Therapeutic Value in Cancer and Other Malignant Diseases. A. V. L. Brokaw.

Illinois Medical Journal, Springfield.

December.

26 *Chorea. L. Harrison Mettler.
27 *Ovarian Dysmenorrhea—Its Treatment by a New Operation. Norman Kerr.
28 Dislocation of the Metacarpo-phalangeal Joint: Irreducible Under Anesthesia, Operation. Homer M. Thomas.
29 Cases Simulating Appendicitis. H. A. Brannecke.
30 Pulmonary Tuberculosis and Its Home Treatment. James L. Lowrie.
31 A Report of Three Medicolegal Cases Involving the Diagnosis of Paranoia. Sanger Brown.

26. **Chorea.**—Mettler concludes that chorea is not a disease, but only one of a group of symptoms which may be due to various etiologic and pathologic conditions. It is traceable to some irritative factor in all its varied manifestations. The difference between the various choreas depends not so much on the choreic movements as on the associated symptoms of the trouble or disease in which the choreiform phenomena form one symptom. He thinks this is logically proven and demonstrable when one observes carefully the etiology, symptoms, prognosis and treatment of every case. He adds that this is the only way to look on chorea in order

to comprehend it thoroughly, to be able to make a correct diagnosis and apply the best line of treatment.

27. **Ovarian Dysmenorrhea.**—The new operation here described by Kerr consists, after the usual preliminaries of laparotomy, in holding the uterus and ovary forward on the side operated on, and then slitting the peritoneum covering the ovarian vessels, viz., the infundibulo-pelvic ligament parallel to the vessels. The areolar tissue is then stripped from the under surface of the peritoneum so as to include, if possible, any nerve fibers that may be present in this space between the two layers of the fold of the peritoneum above mentioned. After this a ligature is applied at the brim of the pelvis to the ovarian vessels. It also includes the loose tissues which have been stripped from the extraperitoneal surface of the peritoneum. After ligation is completed at this point, the same process is repeated an inch or more further down on the vessel and areolar tissue quite near the outer end of the ovary, after which the part between the ligatures is excised. It is necessary, of course, to repeat the same process on the other side of the pelvis because in these cases the neurotic element is very pronounced and the pain is usually referred to both ovarian regions. He reports cases and gives credit for the suggestion of the operation to Dr. M. L. Harris.

California State Journal of Medicine, San Francisco.
December.

32 *Decapsulation of the Kidney for Chronic Bright's Disease. George Goodfellow.
33 Report of Six Cases of Achlorhydria. Austin V. Miller.
34 Puerperal Septicemia. R. A. Whiffin.
35 *Tuberculosis in Fowls. Archibald E. Ward.
36 The Ductless Glands. W. E. Upton.
37 The Prevention of Perineal Lacerations. Edward N. Bwer.
38 Infectious Pulmonary Edema. Preliminary Report. W. Ophüls.

32. **Kidney Decapsulation.**—In Goodfellow's opinion decapsulation of the kidney for chronic Bright's disease is a perfectly justifiable operation, particularly with patients in *extremis*, and is a safe procedure. Spinal anesthesia is of great value in these cases where general anesthesia can not be given. He reports a case and reviews the experience of others on the subject.

35. **Tuberculosis in Fowls.**—This disease exists rather extensively in large chicken farms, but has not been specially noted on account of the fact that the proprietors count on a certain amount of loss, and have not given their attention particularly to this form of disease. Ward gives the results of his findings, with illustrations. The symptoms are only noticeable in advanced cases; the bird becomes anemic and weakened, the lesions are most frequently shown in the liver and spleen, only rarely in the lungs. Out of thirty post-mortems, in only one instance were the lungs involved, and the skin in another. He does not think that it is dangerous as regards infection by ingestion, as the thorough cooking to which poultry is subjected renders the possibility rather remote. It would be of interest to find out whether the eggs are affected; as a rule, tuberculous hens do not lay eggs. The tuberculin test seems to be unavailing in these birds. He believes that the weeding out of tuberculous hens would in a few years eradicate the disease, their short life being favorable for this. It is possible that the weeding out of all chickens that have pale combs and are poor, keeping them separate from the others, would be of great value in this connection.

University of Pennsylvania Medical Bulletin, Philadelphia.
November.

39 *The Surgical Treatment of Facial Palsy. Preliminary Report of One Case. Charles H. Frazier and William G. Spiller.
40 Case of Strangulated Meckel's Diverticulum Complicating Typhoid Fever. Joseph Ballet and Charles H. Frazier.
41 *The Actions of Certain Agents on the Animal Heat Mechanism, with Especial Reference to Morphin. Edward T. Reichert.
42 Address in Obstetrics. Medical Society of the State of Pennsylvania. John G. Clark.
43 Primary Carcinoma of the Vermiform Appendix and the Report of a Case. Charles C. Norris.
44 The Present Conception of Dermoid Cysts of the Ovary, with the Report of a Case of Teratoma Strumosum Thyreoideale Ovarii. Brooke M. Anspach.
45 The Development of the Islands of Langerhans in the Human Embryo. Richard M. Pearce.

39. **Facial Palsy.**—Frazier first reports a case in which after gunshot wound there was complete facial palsy irreparable except by operation. An anastomosis was made of the peripheral end of the facial nerve with the central portion of the hypoglossal. He discusses the different possibilities of anastomosis with the spinal accessory, hypoglossal and glossopharyngeal, the latter being not especially suitable. He remarks that the operation is not exceedingly difficult, but the nerve should be manipulated with extreme delicacy and there should be a minimal number of sutures, all in perfect apposition and aseptic. He recognizes three stages of improvement: 1, The restoration of normal muscle tone which would warrant the operation; 2, the voluntary control over individual muscles, and, 3, complete and perfect recovery, that is, the return of expressional movements, etc. The first can be ordinarily expected, the second is liable to follow. The latter would be more likely the younger the patient.

Spiller discusses the subject from the neurologist's point of view, and thinks that operation affords a bright prospect for the relief of the deformity and facial paralysis, though experience is needed before we can justly estimate its advantages.

41. **Morphin.**—The conclusions of this experimental research by Reichert are that morphin coincidently possesses thermodepressor and thermoaugmentor actions, the former being by far the more important; and that the thermodepressor effects may be preceded or interrupted by thermoaugmentor effects. That the thermodepressor action is exerted, practically solely on the caudate thermoaugmentor center. That the thermoaugmentor action is exerted chiefly on the pontobulbar thermoaugmentor center, and to a very limited extent on the skeletal muscles. That morphin and cocain are direct antagonists in their actions on the caudate center.

Journal of Cutaneous Diseases, New York.
December.

46 *The Present Status of Phototherapy. Frank Hugh Montgomery.
47 A Case of Undetermined Infection of the Skin: Possibly Glanders. J. A. Fordyce and A. D. Mewborn.

46. **Phototherapy.**—Montgomery's article is a very complete statement of the present status of light treatment, and he describes the apparatus and technic, reviewing the results. The idea that the light treatment can be utilized for deep-seated affections receives but little support from his study of the subject, but for superficial disease it is unquestionably of great value. Of all known methods, he says, of treating lupus vulgaris and other forms of cutaneous tuberculosis, phototherapy is the most certain in its action and gives the best cosmetic results. Where the skin is badly pigmented or there are mechanical obstacles such as peculiar or irregular scars, densely infiltrated or hypertrophied areas, or where the disease is so situated, as is usually the case, on a mucous membrane as to be inaccessible to pressure and direct radiation, the *x*-rays are the most effective.

Cleveland Medical Journal.
November.

48 *A Few Remarks Concerning the Surgery of the Biliary Passages. Maurice H. Richardson.
49 *Suggestions on the Nature and Treatment of Delirium Tremens. James P. Kelly.
50 Avoidable Causes of Mortality in Tuberculosis in the Southwest. Guy H. Fitzgerald.

48. **Surgery of the Biliary Passages.**—Richardson notices a number of interesting points in regard to gallstone surgery, especially the hardened, almost cartilaginous, condition of the pancreas sometimes observed, the frequent association of abdominal pain with old and extensive adhesions, and the obscure symptoms caused by lesions of the other viscera in the right upper quadrant of the abdomen, such as those following pyloric disease, etc. Sometimes where gallstones are indicated other and quite different conditions are found. He mentions, for instance, a case of pyelonephritis which had never been suspected, another of intermittent hydronephritis, others of kinks and flexures of the pylorus and duodenum. He believes that surgery of the gall bladder will be immensely advanced in the near future, though there are yet many

questions still in suspense, such as when to extirpate the bladder and when not and when to drain the discharge. He has made systematic observations in the course of abdominal operations wherever conditions permitted. He has frequently found gallstones where there were no symptoms. In some cases the gall bladder has been packed with stones. He can also recall cases where failure to examine the right upper quadrant of the abdomen has resulted in operations lower down in overlooking highly important matters. He thinks where the appendix is removed through an one-inch incision it is poor surgery to enlarge the cut, as a rule, for so uncertain an addition to our knowledge of the case. He holds that gallstones are never dissolved or removed by any course of medication, but may remain latent only to be aroused under very unfavorable conditions. He also holds that cholelithiasis is permanently cured by drainage of the gall bladder. Gallstones almost always originate in the gall bladder, though they may be found in the hepatic duct, and sometimes up in the great fissure of the liver. The liability to overlook them by even the most experienced is very great. The most interesting subject connected with the biliary tract is that of the pancreas. He formerly was inclined to look with disfavor on any case of supposed gallstone associated with enlargement of the head of this organ, but has seen instances where his unfavorable prognosis was belied by his experience. Biliary drainage of the gall bladder for pancreatic congestion seems to be beneficial. Clinical observation shows its value, and the cases are multiplying. He thinks it is not too much to hope that through early recognition of impending disaster acute infection of the pancreas with hemorrhage and fat necrosis can be anticipated and avoided by so simple a procedure as temporary drainage of the biliary tract. Looking back on the results at the Massachusetts General Hospital for the last fifteen years, he is impressed with the evils of so-called conservatism in this line of surgery.

49. **Delirium Tremens.**—Kelly's article is noticed editorially.

Buffalo Medical Journal.

December.

51 *The Relation of Fat to Nervous Disease. Bradford C. Loveland.
52 Personal Experience with Puerperal Fever. Charles E. Congdon.
53 The Bladder Troubles of Old Men. William B. Jones.
54 Cystitis in the Female—Case Illustrating Treatment. W. L. Wallace.
55 Various Orthopedic Appliances. Prescott Le Breton.
56 Presentation of a Patient, the Subject of Calculous Formations in the Kidney, Ureter and Bladder. Bransford Lewis.

51. **Fat and Nervous Disease.**—Loveland makes the points that the depositing of fat in the body is under the functional control of the nervous system, and that a careful study of the patient with regard to the question of fat may be of value both in the diagnosis and prognosis. The physician may soon so learn his patient that he can prescribe a diet and tell with reasonable certainty whether he will lose, keep the same, or gain flesh. Lastly, that an increase in flesh may be taken as an index of improvement in acute mania, melancholia and in thin neurasthenics, as well as in tuberculous patients where it has long been recognized as such.

Journal of Nervous and Mental Diseases, New York.

December.

57 Enormous Tumor of the Postero-parietal Region, Weighing Over Half a Pound; Absence of Localizing Symptoms Until Late in the History of the Case; Operation; Death. F. X. Dercum and W. W. Keen.
58 *Studies on the Cerebral Cortex in the Normal Human Brain and in Dementia Paralytica. G. Alfred Lawrence.

58. **Dementia Paralytica.**—Lawrence concludes his article in this issue, reviewing the technic and discussing the results. He finds that the thickness of the various cortical layers is not constant in the same gyrus or even in the different portions of a single section, to say nothing of different cortical regions. From his study of the literature, as well as his own investigations, he is inclined to accept the view of the three-layered type of cell arrangement, excepting, of course, variations in special parts, such as the cornu ammonis for example. The first or superficial layer contains few nerve cells, many neuroglia cells and many, chiefly tangential, fibers. The second, or pyramidal cell layer, includes small, large and giant cells, and the third, or spindle cell layer, includes both the spindle cells and the less numerous irregular polygonal cells. Below these three layers is the subcortical white medullary substance. He finds four principal types of nerve cells: 1. The small rounded nerve cells with few dendritic processes, with rounded nucleus almost filling the body and well-marked nucleolus, so-called karyochrome nerve cells of Nissl's classification. 2. The pyramidal cells of the second layer, of which there are four varieties: small, large, medium and the typical giant pyramidal cells. These can best be designated as stichochrome nerve cells of the somatochrome class in Nissl's classification. 3. The spindle cells found in the third layer contain a very large nucleus with well-marked nucleolus. These are the gryochrome nerve cells of the somatochrome class. 4. The regular or polygonal nerve cells found in the second and third layers, irregular in shape, with three or more dendritic processes, a large nucleus and well-marked nucleolus. The pathologic changes in dementia paralytica noted by previous observers were all observed by the author excepting vacuolization of the cell protoplasm and pigmentary deposits outside the nerve cell bodies. No vacuolization of the nucleus or extrusion of the same was found and no crystalline or calcareous deposits were made out in any of the cells; no septa were observed penetrating from the thickened pia into the cortex. Multiplication of white corpuscles was not observed, and proliferation of neuroglia cells seems to have existed but to a slight extent in small localized places. He does not mean to say that it may not occur in some cases and be more general. No proliferation of the interstitial network was noted. The pathologic processes were more severe in the central and frontal regions, but extended to a less extent, though still marked, into the temporal and parietal region, the occipital region almost entirely escaping in the case observed. The disease seemed to be a chronic affection of the nerve cells with pigmentary degeneration, necrosis of the cell body, partial or complete, with accompanying involvement of the blood vessels. The relation of the vascular and cell changes to one another and their relation in time is a subject that he thinks requires much more extended investigation before it can be satisfactorily settled.

Archives of Pediatrics, New York.

November.

59 *Discussion on the Relation of the Bacillus of Shiga to the Summer Diarrheas of Children. Simon Flexner, W. H. Park, Henry Koplik, L. Emmett Holt, J. H. M. Knox and W. D. Booker.
60 *Pneumothorax in Children. David Bovaird, Jr.
61 *Chorea: What is It? Charles J. Aldrich.
62 A Case of Multiple Abscesses of the Lung. Samuel S. Adams.
63 A Report of a Case of Infantile Syphilis. Theron W. Kilmer.
64 Poisoning Due to the Chemical Decomposition of Bromoform. A. L. Oberdorfer.

59. **Summer Diarrhea of Children.**—The discussion here published was opened by Flexner, who gave the facts in regard to the identification of the bacillus found in summer diarrhea of children with the Shiga bacillus, and pointed out in what cases they were likely to be found. He mentioned also that there were two well-defined groups of organisms of the dysentery bacillus, one producing a change in the litmus and one not. One was found that agreed with the ordinary Shiga bacillus, but he thinks more care must be taken in the study of the subject. The future must determine what position the organism occupies with reference to the etiology of summer diarrhea.

Park gave his experience with a dysentery epidemic near New York City in which this Shiga bacillus was found. He thinks it does not occur in the larger proportion of cases of summer diarrhea, and he would expect mucus and blood in most instances where it is found.

Koplik pointed out the complexity of the question. He is inclined to think the Shiga group is a limited class. The larger number of cases are due to other germs such as the butyric acid bacillus and the *Bacillus lactis aerogenes*. Still others are due to the anatomic and physiologic insufficiencies of the intestine to tolerate the irritation from cow's milk, a food not exactly adapted to it. Holt stated that a search for

the Shiga bacillus in the Babies' Hospital revealed it in 37 cases out of 112 examined, all of these with symptoms of colitis, mostly acute, with mucus and often bloody stools. The Flexner anti-dysentery serum was used in 8 cases. Two were moribund; in 3 no effect was seen, but in 3 others very striking improvement was apparent.

Knox gave the results of observations at the Wilson Sanitarium in Baltimore and remarked that there was nothing in the character of the stools or pathologic condition at autopsy to differentiate the cases with the Shiga bacillus from the ordinary typical summer diarrhea. He thinks it is quite possible that a large group of both acute and chronic cases will be found due to this organism.

Dr. Booker of Baltimore examined only one case last summer for the Shiga bacillus. It belonged more to the cholera infantum type than to dysentery. Two injections of Flexner's serum did not check the disease, though a slight improvement was noticed after the first. He thinks if we get results from the serum treatment it will be when used in the early stage of the disease before serious anatomic changes have occurred. It has been suggested that the rôle of the Shiga bacillus is to render the intestine more suitable for the activity of other bacteria. If this prove true, the greater the advisability of the early use of the serum.

In closing the discussion Flexner remarked that he agreed with the gentlemen who had spoken of the complexity of the problem, and emphasized that he had not committed himself to any view of the causes of summer diarrheas excepting that this organism occurred in some of them. He is convinced that whatever the Shiga bacillus does it does early, and we have to deal with mixed infections. How much of this complex mixture is a condition of an early infection is an important question. The serum is, of course, experimental. As tested on animals it is very effective and is at least, he thinks, worthy of a trial.

60. Pneumothorax in Children.—Five cases of this rare condition are reported by Bovaird. In 2 it was produced by rupture of areas of bronchopneumonic consolidation occurring as complications of measles; in 2 by rupture of a small abscess of the lung, the clinical history of which is not known, and a fifth case which was probably due to a rupture of an emphysematous vesicle. As the latter case was only partial and the patient recovered, the etiology could not be exactly determined. He reviews the literature and remarks that as only 4 recovered out of the 18 cases collected, pneumothorax in children must be considered a very grave complication. With our limited experience we can not lay down a treatment, but the extensive displacement and consequent interference with the function of the heart suggest the advisability of withdrawing air from the pleura, or in the event of failure in this, to make a free incision.

61. Chorea.—Aldrich reviews the different forms of chorea, limiting the term properly to the Sydenham type. He describes its course, symptoms, diagnosis, etc. Owing to the absence of characteristic lesions the belief is growing, he says, that the disease is due to irritation of the motor mechanism in the cells of the cerebral cortex by some infectious irritant. Individual predisposition plays a part, and it must be regarded as a disease of neurotic stock, unable to meet the strains of early school life, to withstand the changes of adolescence as well as early pregnancy, in fact, unable to meet anything that lowers the normal physiologic resistance. The cases attributed to fright almost always show on analysis that this is only a climax in the course of a disease already established. Peripheral and reflex irritation, as from worms, eyestrain and adherent prepuce, play no part in the etiology of true chorea any more than poor hearing or ingrowing toe nails.

Annals of Otology, Rhinology and Laryngology, St. Louis.
September.

65 *My Latest Improvements in the Radical Treatment of Chronic Suppurations of the Accessory Cavities of the Nose. Dr. Luc (Paris).

66 *Observations on the Diagnosis of Nasal Sinusitis. Walter J. Freeman.

67 *Diseases and Treatment of the Sphenoid Cells, with Report of Cases and Presentation of Instruments. Robert C. Myles.

68 A Bony Cyst in the Antrum of Highmore. C. G. Coakley.

69 The Microscopical Examination of the Discharge in 100 Cases of Middle Ear Suppuration, with an Analysis of the Results Having Special References to the Presence of Tubercle and "Acid-fast" Bacilli. Wyatt Wingrave.

70 A Case of Thrombosis of the Cavernous Sinuses. Samuel Lodge.

71 *Paraffin Subcutaneously Injected for the Correction of External Deformities—The Dangers to Be Avoided and the Technic. Harmon Smith.

72 Tobacco Nerve Deafness. Wyatt Wingrave.

73 A Case of Acute Otitis Media and Sinus Thrombosis; Mastoidectomy; Excision of Internal Jugular Vein; Serous Meningitis; Exploratory Craniotomy; Death; Autopsy. Edward B. Dench.

65. Suppurations of Accessory Cavities.—In the beginning of his article Luc declares his agreement with Lermoyez in his statement that surgical treatment ought to be limited to chronic forms of the disease. In these chronic forms we should distinguish between the properly called suppurative sinusitis, due to primitive infection, and the maxillary empyema in which the pus does not originate in the cavity but simply accumulates in it. In the latter, a simple washing of the cavity may sufficiently relieve the conditions. Luc does not consider it advisable to adopt the radical operation in chronic abscess of the antrum without previously having attempted to cure it by washings if a puncture has been made in the inferior meatus. As regards the Luc-Caldwell operation he admits Caldwell's priority, while claiming independence in the origin of the method. He mentions the Ogston-Luc method for frontal abscess pointing out certain defects in unfavorable cases due to the excessive size of the sinus as compared with the outlet provided, and mentions with approval the Killian operation for these cases. He has no personal experience with an isolated ethmoidal suppuration, and consequently has treated it usually in connection with frontal and maxillary disorders. The ethmoidal labyrinth is attacked by him by a new method, which dispenses with the so-called nasal curette and substitutes a special forceps. He describes the methods of using it, first attacking the middle turbinate to make way for the opening of the ethmoidal cells. The choice of the route to the sphenoidal cavity is according to the spaciousness or narrowness of the nasal fossæ and the coincidence or non-coincidence of an empyema in the maxillary antrum, the latter being the safest and easiest way to the sinus. When there is nothing more than the middle turbinate and the posterior ethmoidal cells in the way the method used in intranasal curetting of the ethmoidal cells can be employed with advantage. Only when there is an abnormal resistance of the anterior wall of the cavity is it advisable to have recourse to a perforator and enlarge the opening thus made by a cutting forceps. The coincidence of an antral empyema with the sphenoidal suppuration settles the question as to the mode of reaching the sphenoidal cavity. The antral route is the best in such cases.

66. Nasal Sinusitis.—Freeman insists on the use of all methods of examination and notes the embarrassment frequently caused by failure of the transillumination tests. The presence of polypi and edema of the mucosa in the neighborhood of the sinus ostium should call our attention to the nasal sinus. No sign has been as useful to him as the discovery of pus flowing over the upper surface of the posterior end of the inferior turbinate. He has frequently been able to make a diagnosis by odors, such as those of sour pus and of sulphuretted hydrogen. The continued presence of foul odor of the antrum secretion almost unerringly points to the teeth as the cause of inflammation and the presence of discolored molars or bicuspids should be viewed with suspicion, and the tests of heat and cold and transillumination be applied. In washing the antrum through the normal opening he has found it of use to explore first with a delicate cotton-wound probe, and after the opening has been detected and the correct curve attained, to fashion the curve of the canula after it. He has devised a special irrigation canula which by heating can be fashioned to any curve and will often bend and conform to the irregularities. He has found it more convenient than the metal tube, and very serviceable in every way. As regards ethmoidal disease

from grippe he has never seen any case of this origin which did not recover in a few weeks. He does not believe that chronic suppurations of the ethmoidal cells exist to the extent that certain statistics would indicate. He warns against turbinectomy, and thinks that before thorough investigation, before sacrificing the middle turbinate it is due to the patient to suspect the antrum and try irrigation. Ethmoidal suppuration is frequently diagnosed and antrum disease overlooked. Lichtwitz' statistics are quoted in this connection. He thinks attention is being directed too much to the ethmoids and the antrum too much disregarded. The assertion of Schaffer and others that the formation of crusts in the pharyngeal vault suggests sphenoidal disease is, he thinks, misleading. Vertigo and pain at the occiput, deep in the eyes and in the ears, may be caused by disease of any one of the sinuses and pain across the bridge of the nose, considered so characteristic of ethmoid disease, he has repeatedly caused by manipulations in the sphenoid cavity. The close proximity of the fifth nerve makes reflex pain at any part of the head possible. He has had cases where the frontal or the antrum were positively the only cavities involved, in which there was intense earache sometimes of the corresponding side and sometimes of both. Any great reliance on the symptom of pain, therefore, is liable to be misleading. As regards ocular manifestations, he quotes Posey, who says that general symptoms of asthenopia, not relieved by glasses, should direct attention to the nasal sinuses. When drainage is abundant and the turbinate swollen, positive diagnosis of the special cavity is impossible, but by contraction by cocain and repeated cleansing by anterior and posterior syringing one can usually arrive at a fairly accurate diagnosis by watching the pus appear at its special locations. The washing should be done so that the water is caught in a black basin. The use of suprarenal extract is not advisable in sinus suppurations as the blanching of the surface prevents the recognition of small amounts of secretion. A point he has found of value in carrying out the Fränkel and other position tests is to have the patient close the opposite nostril and sniff and blow alternately. This draws the pus from the sinus. Where there is difficulty in detecting the cavity the patients should be examined early in the morning before the sinus has emptied, and late in the evening when the sinus has had a chance to refill. The morning is favorable for detecting pus from the frontal and ethmoids, the evening for secretion from the antrum and sphenoid.

67. **Sphenoidal Cell Disease.**—Myles holds that the sphenoidal cells are more often diseased than we have believed. When muco-pus is seen in the superior meatus or between the middle turbinate and the septum, the probe and cleansing swab should be used until the secretion is traced to its origin. Sometimes the posterior half of the middle turbinate will have to be removed to investigate the region, and he thinks we are often too conservative in not removing the body early and more frequently. When a diagnosis has been made and the character of the case approximately determined, we should endeavor to make an opening 10 to 15 mm. in diameter in the anterior superior wall, commencing the section at the lower border of the natural opening and extending downward in a vertical line, rather close to the septum. He illustrates the instruments for this purpose, all made with guards, and reports cases.

71.—The points of this article were given by the author in THE JOURNAL, Sept. 26, 1903, p. 773.

Ophthalmic Record, Chicago.

November.

74 *A New Advancement Operation. G. C. Savage.
75 Episcleritis. Don M. Campbell.
76 Two Unusual Forms of Keratitis, Probably Rheumatic in Origin. Howard F. Hansell.
77 Notes from the Clinic of Dr. Galezowski. E. C. Ellett.
78 Deficient Dynamics of the Extra-ocular Muscles. C. W. Le Fever.

74. **A New Advancement Operation.**—Savage's claim for his operation is that it is done without cutting the tendon. He also describes a special method of taking scleral stitches. He makes: 1, a cut through the conjunctiva parallel with the plane of the equator, a short distance behind the tendon insertion, not including the capsule of Tenon. 2. An opening through the Tenon capsule just below the border of the tendon, through which he passes a large strabismus hook, beneath the tendon. When the point of the hook reaches the structures above the tendon a snip should be made in the capsule so as to allow it to emerge. 3. The tendon is lifted by the hook so as to make the taking of the stitch through the muscle and capsule easy, without dipping the needle into scleral structure. The stitch is done as in plain sewing and the puncture and counter-puncture should be one-eighth to three-sixteenths of an inch apart, the conjunctiva being held back with forceps by an assistant. The loop, consisting of the middle of the suture which is armed with two needles, is beneath the central part of the muscle at just that distance behind the tendonous insertion indicated by the operator's judgment. 4. The forceps and hook having been removed, the operator taking the fixation forceps in his own hand, seizes the tendon at its insertion so as to hold the eye steady while passing two needles into the scleral tissue, the anterior conjunctival flap being held forward by an assistant. Either needle may be passed first. The points of passage are chosen with the view of not changing the plane of action of the muscle if there is no cyclophoria, or of changing it if there is. In the former case one needle is passed just as far below the plane of the horizontal meridian as the other is to be passed above this plane. The lower needle should be held parallel with the plane of the equator and well behind the canal of Schlemm. The puncture made below and the counter-puncture made above should include only a narrow band of scleral fibers and the dip of the needle into the sclera should not be too deep. A similar vertical stitch above the horizontal plane should be taken with the other needle. The space between the two vertical stitches should be as broad as the stitch previously taken in the muscle, and the one scleral stitch should be as far below the horizontal plane as the other is above. After the scleral stitches the two needles should be passed through the anterior conjunctival flap. Lastly, he ties the suture over the silver suture plate devised by Dr. G. H. Price of Nashville. The two needles having been passed through the two holes in the suture plate are now removed and the surgeon's knot is tied, but not until that part of the muscle through which the loop was passed has been drawn as far forward as necessary, usually up to the scleral stitches. He says since this part of the muscle can not be drawn a greater distance in advance of the tendon insertion than the distance between the loop of the suture and the tendon inserton, it becomes evident that the muscle stitch should be the same distance behind the insertion of the tendon as the scleral stitches are in front of it. The folded muscle and tendon lie flat and the posterior conjunctival flap is drawn forward nicely. He has not seen this operation described elsewhere.

New Orleans Medical and Surgical Journal.

December.

79 The Effects of Hypertrophy of Pharyngeal Tonsil on the General Health. W. Scheppegrell.
80 *Hyoscin Hydrobromate in the Treatment of the Morphin Habit. Louis Abramson.
81 Some Practical Points in Chloroform Anesthesia. T. H. Schumpert.
82 Some Experience with Diphtheria and Its Treatment. O. M. Patterson.

80. **Hyoscin Hydrobromate.**—Abramson advocates the use of hyoscin hydrobromate injections in cases of morphinism. He believes in the use of tonics, etc., for some time after the morphin has been finally withdrawn and the effect of hyoscin has passed away.

Brooklyn Medical Journal.

December.

83 The Legal Status of the X-ray. W. W. Goodrich.
84 *A New Suggestion in the Treatment of Uterine Carcinoma by the Combined Use of Finsen Light and Roentgen Ray. George G. Hopkins.
85 Subpectoral Abscess. Russell S. Fowler.
86 Palliative Treatment of Cancer of the Cervix, with Report of Cases. Walter B. Chase.
87 *Peritoneal Adhesions in the Pelvis. Henry C. Keenan.

84. **Uterine Carcinoma.**—Hopkins pleads for the treatment of uterine carcinoma by the combined use of the Finsen light and the Röntgen ray; one hour exposure of the former and five or eight minutes of the latter is a good proportion. This has given him excellent results without causing any injury. He

describes his technic, using the ordinary bi-valve speculum if the vagina is not involved, protecting the lateral walls with tinfoil. While most of his cases have been pretty far advanced the results have been such as to encourage him with this treatment.

87. **Peritoneal Adhesions.**—In pelvic peritoneal adhesions Keenan would advise laparotomy in pus cases, but in cases of post-operative adhesions a thorough course of medical treatment, including massage, should be given before asking the patient to submit to the uncertain results of a second operation. He thinks we need more detailed information as to the remote results in these cases so as to form a better idea of the course of treatment.

Medical Sentinel, Portland, Ore.
November.

88 Feeding of Infants. George Collister.
89 Puerperal Infection, Its Origin, Prophylaxis and Treatment. H. A. Castle.
90 The Treatment of Summer Complaint of Children. B. L. Steeves.
91 Gastric Ulcer. E. F. Root.
92 The Romance of Medicine. J. C. Sullivan.

Archives of Pediatrics, New York.
December.

93 *Report on the Results with Different Kinds of Pure and Impure Milk in Infant Feeding in Tenement Houses and Institutions of New York City: A Clinical and Bacteriologic Study. Wm. H. Park and L. Emmet Holt.
94 Two Cases of General Gonococcal Peritonitis in Young Girls Under Puberty: One Simulating Appendicitis, Operated On. W. P. Northrup.
95 Leucoderma of Five Years' Duration in a Boy Aged Eleven Years. R. Barclay Ness.

93.—See abstract in THE JOURNAL xli, ¶ 2, p. 1556.

Medical Standard, Chicago.
December.

96 Classification and General Etiology of Nephritis. Arthur R. Elliott.
97 A Study of Fatigue in Gastric Muscle. Fenton B. Turck.
98 Observations on Tuberculosis in Colorado. W. F. Church.
99 The Limitations of the Practical Value of Urethroscopy. Louis E. Schmidt.
100 The Mechanism of the Muscles of the Larynx. J. F. Burkholder.
101 The Joys of Intellect: A Sequel to "The Penalty of Genius." Ernest Crutcher.

Bulletin of the Kentucky State Medical Association, Louisville.
December.

102 Typhoid Fever. E. N. Hall.
103 The Value of Widal's and Ehrlich's Tests in Typhoid Fever. Orville A. Kennedy.
104 Typhoid Fever; Its Treatment. Milton Board.
105 Some Reasons Why We Should Use Antiseptics in the Treatment of Typhoid Fever. J. M. Peck.
106 The Sequels of Typhoid Fever. John A. Ouchterlony.
107 Treatment of the Depraved State of System Incident to the Drinking of Contaminated Water. D. G. Simmons.
108 Gastric Neurasthenia. John H. Blackburn.

Woman's Medical Journal, Toledo.
October.

109 The History of Medicine. Marcel Baudoin.
110 The Immediate and Remote Effects of Eyestrain. Mary E. Bates.

New York State Journal of Medicine, New York.
December.

111 Etiology and Pathology of Typhoid Fever. G. Scott Towns.
112 Complications and Prognosis of Typhoid Fever. George F. Comstock.
113 Medical Treatment of Typhoid Fever. John F. Humphrey.
114 Hydrotherapy in Typhoid Fever. Frederick J. Kessegue.
115 *The Influence of the Municipal Milk Supply on the Deaths of Young Children. George W. Goler.
116 *The Causes of Failure Following Operation for Nephroptosis. Augustin H. Goelet.
117 The Treatment of Compound Fractures. Vacil D. Bosovsky.

115.—Ibid., p. 107.

116.—Ibid., p. 1108.

Mississippi Medical Record, Vicksburg.
December.

118 Malarial Hemoglobinuria. J. B. Anderson.
119 Some Points in the Early Diagnosis and Treatment of Tuberculosis. W. J. Hunnicutt.

Journal of Advanced Therapeutics, New York.
December.

120 *The Effects of the Secondary Static Currents in Removing Albumin and Casts from the Urine, with Reports of Cases. Boardman Reed.
121 The Therapeutics of the Continuous Current. (Continued.) Margaret A. Cleaves.
122 Report of a Case of Carcinoma of the Breast Treated by Massive Mercuric Cataphoresis. G. Betton Massey.
123 High Frequency Currents in the Treatment of Certain Diseases. Curran Pope.
124 Radium. Samuel G. Tracy.

120.—Ibid., p. 977.

Fort Wayne Medical Journal-Magazine.
November.

125 Preventive Medicine and the Relation of Boards of Health to the Regular Physician in Its Application. A. H. Macbeth.
126 The Increase in Neuropsychopaths; with a Method Looking to Their Relief. Charles R. Dancer.
127 Puerperal Nephritis. L. Park Drayer.

New Yorker Medicinische Monatschrift, New York.
October.

128 Dermatologie als Specialitat und die practischen Aerzte. H. G. Klotz.

Medical Times, New York.
December.

129 Chronic Peritonitis in Children. George R. Wilson.
130 A Study of Hypnotics. A. M. Leonard.
131 The Use of Venesection in Proper Cases. William Wormley.
132 The Private Care of the Insane. M. E. Fitch.
133 Membranous Stomatitis—Complicating Pneumonia. Eight Cases Reported. J. M. Frazier.
134 Suggestive Therapeutics, with Report of Its Action in a Case. C. H. Dixon.
135 Trachoma. James M. Crawford.

Journal of Medicine and Science, Portland, Me.
November.

136 Gonorrheal Affections of the Mucous Membranes. James B. Willing.
137 Some Historic Data in Preventive Medicine. N. J. Gehring.

Mobile Medical and Surgical Journal.
November.

138 Antiseptic Inhalation Treatment of Phthisis. M. M. Saliba.
139 The Use of Nature's Forces in Correcting Retrodeviations of the Uterus. R. R. Kline.
140 Retroversion of the Uterus—Is It a Symptom or Disease? S. W. Purifoy.
141 Intestinal Anastomosis by Means of McGraw's Elastic Ligature. W. T. Henderson.
142 Education Against Pulmonary Tuberculosis. Claude C. Pierce.

Transactions of the Chicago Pathological Society.
October 18.

143 Christian Fenger as a Pathologist. E. R. Le Count.
144 A Cardiac Anomaly: An Elongated Auricular Appendix. J. P. Spooner.

Carolina Medical Journal, Charlotte.
November.

145 Hookworm Disease. C. A. Julian.
146 The Influence of Alcohol in Heredity. A. W. Moye.
147 How to Prevent Malaria. Hugh B. Hoyle.

Toledo Medical and Surgical Reporter.
December.

148 Renal Elimination. R. C. Longfellow.
149 Handwriting as an Index to Character and Mentality. Lewis H. Clement.
150 Some Suggestions in X-ray Work. Harry Dachtler.

American Medical Compend, Toledo.
December.

151 Can an Ophthalmic Examination Aid the Life Insurance Examiner in His Work? George F. Suker.
152 *Handwriting as an Index to Character and Mentality. Lewis H. Clement.

152.—See also title 150 above.

Alabama Medical Journal, Birmingham.
December.

153 In Memoriam William E. B. Davis, M.D. L. S. McMurtry.
154 The Treatment of Uterine Cancer with the Roentgen Rays. Bernard Wolf.
155 The Digestive Ferments. W. S. Sanders.
156 Placenta Previa, with Report of Three Cases. H. R. Coston.

Maryland Medical Journal, Baltimore.
December.

157 Tetanus. A. Aldridge Matthews.
158 Infectious Diseases from a Public Health Standpoint. C. Hampson Jones.

Southern Practitioner, Nashville, Tenn.
December.

159 The Diagnosis and Operation for Gallstones. William D. Haggard.
160 Constrictions and Dilatations of the Ureter Demonstrated by Paraffin Casts. Byron Robinson.
161 Anchylostoma Duodenalis or Hookworm Disease. Louis Leroy.

Medical Review of Reviews, New York.
November 25.

162 The Protection of the Milk Supply of Cities. Ernest J. Lederle.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

December 5.

1 *Means for the Prolongation of Life. Hermann Weber.
2 *The Treatment of Some Acute Visceral Inflammations. D. B. Lees.
3 *On a Dysentery Antitoxin. Charles Todd.
4 *On Total Extirpation of the Stomach with a Record of an Unsuccessful Case. B. G. A. Moynihan.
5 A Case of Double Perforating Gastric Ulcer. L. Lovell Keays.
6 Excision of a Perforated Gastric Ulcer—Recovery. E. Oliver Ashe.
7 Sleeping Sickness and Trypanosomiasis in a European; Death; Preliminary Note. Patrick Manson.

December 12.

8 *Cancer and Its Origin. Henry Morris.
9 *The Parasitic Theory of Cancer. H. G. Plimmer.
10 *The Behavior of Cancer Within Nerve and Trophic Areas. G. Lenthal Cheatle.
11 *Nature and Physiological Action of Radium Emanations and Rays. Dawson Turner.
12 *Radium and its Therapeutic Effects. John Macintyre.
13 *On the Treatment of Cancer. Lovell Drage.
14 *Paraffin Cancer. Robert Kirk.
15 *The Possible Association of the Consumption of Alcohol with Excessive Mortality from Cancer. Arthur Newsholme.

1. The Prolongation of Life.—The advice of Weber for the prolongation of life is summed up in moderation in eating, drinking and physical indulgence, securing of pure air out of doors and in, keeping of every organ of the body as near as possible in constant working order, daily regular exercise in all weathers, supplemented in many cases by breathing exercises, climbing and walking tours, early going to bed and rising and restricting of sleep to six or seven hours, daily baths according to individual conditions, cold or warm, or warm followed by cold, regular work and mental occupation, cheerfulness, employment of the great power of the mind in controlling passions and nervous fears and strengthening the will in carrying out whatever is useful and checking the craving for stimulants, alcoholics and other injurious agencies.

2. Pneumonia.—Lees' third lecture describes the physical examination and treatment. As soon as the condition is recognized he would put hot water bottles to the feet, ice bags over the suspected part of the lungs, use cleansing of the mouth and fauces and spraying the throat every three hours for the first two days. Infection often starts from the mouth. The diet should be milk, or milk and barley water, given every two hours, and water as desired. The patient should be seen a second time the same day and any increase of dullness be treated by local application of ice. This may arrest the disease. The temperature will then be lower the second day and the air will enter the suspected area more freely. The pulse rate will be less frequent, but care should still be exercised to find any additional focus and meet it. If the attempt is unsuccessful the area of dullness will be larger, and inspiratory crepitation will be heard. It is desirable to give two or three grains of calomel followed by a Seidlitz powder. If sufficient evacuation is obtained the purgative should not be repeated. The third morning the physical signs must be carefully determined and local applications carefully arranged to meet the conditions. On the third evening, unless there has been a marked improvement it may be advisable to apply a leech an hour before sleep, thus relieving the right heart, and then give a considerable quantity of water to satisfy the thirst and help elimination. If the patient does not come under treatment until the fourth day after the attack he will probably be in considerable distress, dyspnea, cyanosis, headache and dulness in the right auricle may be from 2 to 2½ finger breadths in the fourth space. This should be ascertained at once before an attempt is made to discover the amount of disease in the lungs. A larger number of leeches should be used than would have sufficed before. Venesection is often preferable, four ounces for a young adult, eight ounces for a strong man. Both lungs should then be carefully examined and ice bags applied and oxygen administered. On the fifth day if the treatment has been vigorous, leeches and ice give often a practical improvement, but severe cases can not be yet controlled. It may be advisable to limit the fluid given to avoid strain on the right heart and to give only malted milk powder dissolved in milk. It is desirable to again examine the right heart on the evening of the third day and if the condition of the heart is dubious, let the decision be for leeches again. If the patient has slept well and the right auricle does not measure more than two finger breadths, the leeches may be discontinued. If the patient has reached the fifth or sixth day of his illness, and neither bleeding nor ice bags have been employed, the symptoms are often very severe, the distress great and the outlook gloomy. The prognosis depends on the age, previous condition of health, the intensity of the infection and the action of the medical attendant. The first necessity is venesection and hypodermic injections of strychnin in three minim doses every four hours. This will doubtless cause improvement unless the case is a bad one, and he advises early consultation. In the case of an infant or an adult older than thirty years the danger to life is great and judicious treatment required from the very first. Pneumonia in adults usually ends with a rapid fall of temperature and a slowing of the pulse. In a child the subsidence is apt to be more gradual. It is necessary to watch for the quick diminution of temperature, especially in children. Ice bags should be gradually removed and the last taken off when the thermometer marks 100 F. There is a tendency to collapse in crisis, which must be kept in mind, and ice bags might be injurious. The crisis is often preceded by a remission of temperature that lasts only a few hours, hence it is well to watch the temperature. If it rises to 101 a single icebag should be used, and if to 103, two of them, the nurse carefully observing the case. If the temperature shows a persistent tendency to keep above the normal after the crisis, empyema should be suspected. The danger of overlooking such a condition is great and should always be kept in mind, and an exploring needle used if there is any room for doubt. Pleurisy may be treated with ice bags to the chest. The lecture also discusses the subject of appendicitis, and acute nephritis, giving illustrative cases.

3. Dysentery.—Todd, in this preliminary communication, describes the discovery of a dysentery antitoxin produced by growing the dysentery bacillus in a somewhat mildly alkaline broth. Certain animals, notably horses and rabbits, are highly susceptible to this toxin, which is fairly stable, though destroyed by an exposure to a temperature of 80 C. for an hour, but not at 70 or a lesser temperature. When injected into suitable animals, such as the horse, it gives rise to a powerful antitoxin. The combination of toxin and antitoxin *in vitro* does not take place immediately, but requires a certain time, and the rate of combination varies with the temperature.

4. Gastrectomy.—Moynihan reviews the records of this operation, which was first performed in America, and reports an unsuccessful case. He thinks that complete extirpation of the stomach is not merely brilliant surgical gymnastics, but has its proper place in surgery.

8. Cancer and Its Embryonic Origin.—Morris discusses the various theories of cancer and criticises and rejects the parasitic theory. The one he favors is that of Cohnheim, as modified by Durante, Nicoladoni, Ribbert and Senn, namely, the existence of congenital matrices of embryonic cells as well as postnatal formations, the maintenance of these foci and their arousal into activity from various causes. He goes at length into arguments in favor of this tumor-germ theory which escapes the objection raised against the local and constitutional theories and accounts for various phenomena, such as the transformation of benign into malignant tumors, better than the parasitic. It convinces us, he says, of the local origin of cancer and the curability of it if taken early.

9. The Parasitic Theory of Cancer.—Plimmer takes the opposite view, reviews the literature, his own researches and those of others and maintains that the parasitic theory can not be put out of consideration, for it offers the best explanation. He asserts that the clinical course of the disease, its beginning in one spot, its extension to different parts by lymphatic or blood routes, the cachexia out of all proportion to the extent of the disease, the spread by contagion, occurrence in certain parts of the body and its return after years

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of quiescence drive us to the parasitic theory. He also thinks that it offers the only hopeful outlook. The arguments that he brings up for it are the localization of cancer in certain moist and wooded districts, and in certain dwellings, the objective signs, the bodies found by himself, Gaylord and others and the inoculation experiments from man to animals and animals to animals, etc.

10. **Cancer and the Nervous System.**—Cheatle holds that he has proved a direct relation between cancer and the nervous system; that its spread and limitation to the skin and muscles bears a practical relationship to the presence of nerves and that the absence of nerves where normally they previously existed bears a marked relation to the limits of cancer. His article is very fully illustrated, especially as regards the nerve distribution of the areas occupied by rodent ulcer.

11. **Radium.**—Turner describes the properties of radium showing that it gives out a radio-active emanation and three kinds of rays; that it keeps itself at a higher temperature than its surroundings and emits heat at an estimated rate of about 100 calories per gram per hour. It is in its behavior antagonistic to some of the fundamental physical laws. The emanation is of the nature of a luminous gas, which can be condensed by intense cold and which imparts radio-activity to objects in its path; more than two-thirds of the heating effect of radium is due to this emanation, and 1 c.cm. would probably instantly melt down the glass tube which contained it. The α-rays consist of a stream of positively charged particles of mass about twice that of the hydrogen atom and projected with a velocity of about 20,000 miles a second. They have little penetrative power. The β-rays appear to resemble the cathode rays of a Crooke's tube, negatively charged, more penetrating than the α-rays and consist of particles of about 1/1,000 of the mass of a hydrogen atom and are powerfully actinic. The γ-rays, or the gamma rays, are the most penetrating of all, and evidently resemble the Röntgen rays from a hard tube. Together with these qualities radium seems to manufacture the gas helium. With these physical qualities he then notices the therapeutic possibilities such as the suggestion of Mr. Soddy, that a consumptive patient should inhale the emanation so as to bring the remarkable agent in contact with the diseased lung. A few milligrams of radium bromid may be placed in water in a suitable inhaler and the emanation drawn into the lungs, but he gives warning against using such a remedy without previous medical sanction. Owing to the property the emanation has of imparting radio-activity, the effect of the inhalation would probably continue for a considerable time, for the air-passages will become radio-active. The radium rays have been found to be bactericidal with long exposure. The micro-organisms do not appear to be very susceptible, but it is dangerous to human tissue; one can not carry radium in one's pocket without bad effects. The effects of the rays on mice have been found to be fatal on the fourth or fifth day, the skin and brain being the most affected. The partially blind seem to be able to perceive by radium. The chief physiologic effects are summed up in the effects on the skin producing inflammations and ulcers, effects on the nervous system producing paralysis and death and the luminous effects produced in the partially blind. He thinks if it were possible to obtain radium in large quantities it would do away with the bulky α-ray apparatus, and if we could isolate it so that its effects would only be directed in useful ways we could light and heat our houses and run our ships with moderate quantities of the element.

12. **The Therapeutic Properties of Radium.**—Macintyre finds that the therapeutic action of radium has been mostly shown in lupus and rodent ulcer, but is useful in the same class of cases as is treated by the α-rays, Finsen light and high frequency currents. Experiments so far do not justify a comparison between the salts of radium and other agents. There is need of further investigation into its physiologic and other properties.

13. **The Treatment of Cancer.**—Cinnamic acid has been employed by Drage in the treatment of cancer by injection. Four cases are reported. The idea was to produce a leucocytosis and a secondary fibrosis of the tissues. These can usually be produced in pulmonary tuberculosis, but are more difficult in cancer. He claims the treatment is based on sound principles and that it has a future. He also uses another material, which he does not name, but promises to do so. It would seem that while the main growth was prevented from invading the adjacent tissue it was not completely checked.

14. **Paraffin Cancer.**—Kirk has noticed the frequent occurrence of epithelioma in workers in mineral oil. He thinks it is accounted for by the irritation produced. Such growths are less frequent than formerly on account of the use of different processes of purifying the shale from which the oil is produced. This is now done by superheated steam.

15. **Alcohol and Cancer.**—Newsholme analyzes the statistics of the United Kingdom Temperance and General Provident Institution which has its special departments for abstainers and non-abstainers. He finds that the latter furnished a far greater proportion of deaths from all causes, also from malignant diseases. The death rate from all causes of the three years 1891, 1896 and 1901 was 17.13 among abstainers and 23.52 per 1,000 lives among non-abstainers, while the death rate from malignant diseases was .95 among the former and 1.32 per 1,000 among the latter. In other words, if the death rate among non-abstainers in each instance be stated as 100 that of abstainers from all causes is 72.8 and from cancer 72. The various aspects and conditions which might modify the figures are discussed and the general results appear unchanged.

The Lancet, London.

December 5.

16 *Continuous Local Infection. Richman J. Godlee.
17 A Patient with Mitral Stenosis. Henry Waldo.
18 On the Present Treatment of the Enlarged Prostate. C. Mansell Moullin.
19 A Case of Chronic Intussusception; Excision of 42 Inches of Small Intestine; Recovery. F. C. Wallis.
20 Adaptation and Compensation. G. A. Gibson.
21 A Case of Invasion of the Cauda Equina by Tumor with Demarcation of All the Sensory Root Areas of the Lower Limbs. Charles R. Box.
22 *On Albuminuria as an Accompaniment of Diabetes Mellitus. (Continued.) F. W. Pavy.

December 12.

23 Cancer and Its Origin. Henry Morris.
24 *Antituberculous Serum and "Vaccine." Alexander Marmorek.
25 *Inoculation with Haffkine's Plague Prophylactic; a Review of 30,000 Cases. Charles E. F. Forsyth.
26 Some Observations on Over 6,000 Inoculations Against Plague. J. W. Miller.
27 Symptomatic Parotitis Following Strangulated Hernia. Frederick B. Jefferiss.
28 Eosinophilia in Bilharzia Disease and Dracontiasis. Andrew Balfour.

16. **Continuous Local Infection.**—Godlee notices certain conditions of chronic infection due to a suppurating appendix, and more especially those from pyorrhea alveolaris and reports a case illustrating what the latter lesion may produce and what it may simulate. Other causes of systemic infection are tuberculous disorders, such as absorption from tuberculous glands, systemic poisoning from leucorrhea, etc.

22. **Albuminuria and Diabetes.**—Pavy's article is continued from a former number, and the case reports are continued, illustrating the effect of the excessive use of alcohol in connection with diabetes. He says a moderate use of it may be beneficial, but an excess aggravates the diabetes and invites damage in which the kidney participates. The albuminuria which occurs in connection with the diabetes he points out may exist for a long time without leading to any symptomatic indication of its presence. Its presence, therefore, is not to be looked on as affording ground for apprehension in the same manner as when occurring under other circumstances.

24. **Antituberculous Serum and Vaccine.**—This article has been noticed editorially in THE JOURNAL, xli, p. 1479.

25. **Plague Inoculation.**—Forsyth gives the result of the use of Haffkine's plague prophylactic in over 30,000 cases showing the advantages of this measure. Both classes, the inoculated and uninoculated, lived under the same conditions. The death rate per cent. was only .22 among the inoculated but was 2.6 against the uninoculated. That it was not more effective he thinks is due probably to the inefficiency of the methods of vaccination, the subjects desiring to get along with as little trouble as possible. He criticises the inefficiency and half-hearted

measures that have been undertaken in India and believes with a proper appreciation of inoculation and common-sense methods of disinfection and segregation the disease may be stayed.

Journal of Tropical Medicine, London.

December 1.

29 Dysentery. E. E. Waters.
30 The Effect of Drainage and Other Measures on the Malaria of Klang, Federated Malay States. Malcolm Watson.
31 Some Observations on Tinea Imbricata, Yaws, and the Treatment of Dysentery. Raoul De Boissiere.

Presse Médicale, Paris.

32 (II, No. 93.) La médication phosphorique dans la psychasthénie. A. Martinet.
33 Bloodless Treatment of Fractures of Patella, Etc. Chaput.—Traitement des fractures de la rotule et de l'olécrane par la methode non-sanglante.
34 Appareil fixateur pour la confection des plâtres pour coxalgie (extension apparatus for applying casts). P. Desfosses.
35 Méthode de différenciation rapide des albumines de l'urine. Mérieux (Lyons).
36 (No. 94.) *Forme pseudo-méningitique du syndrome d'insuffisance surrénale aigue. E. Sergent.
37 La ponction lombaire dans les complications endocraniennes des otites. Chavasse and Mahu.
38 (No. 95.) L'action de l'iode. L'iode et le tissu lymphoïde. M. Labbé and Lortat-Jacob.
39 L'ankylostomasie en France. J. P. Langlois.
40 (No. 96.) La balnéation froide dans le traitement des synovites crépitantes (cold hydrotherapy). P. Derocque.
41 La suppression du cristallin transparent dans le traitement de la myopie. A. Trousseau.
42 Etat réticulé des valvules sigmoïdes du coeur ches l'homme (reticulation of heart valves). C. Garnier.

36. Acute Insufficiency of the Suprarenals.—Sergent published a description of this syndrome in 1899. He now reports 2 more cases with necropsy which corroborate the existence of a pseudo-meningitis originating in suprarenal insufficiency. There had evidently been a chronic affection of the suprarenals in each case, clinically latent, until fanned into a flame which proved rapidly fatal. One patient was a young woman, the other a man of 32. The symptoms suggested intoxication from the sudden suppression of the suprarenal functions. The syndrome may simulate also acute dyspepsia, poisoning, peritonitis, or cholera. The combination of pains in the epigastrium, anorexia, vomiting, extreme prostration and progressive emaciation, arterial hypotension and tachycardia indicated the suprarenal origin, but other symptoms such as the trigger attitude, the instability of the pupils, photophobia and pain on pressure of the eyeballs, cutaneous hyperesthesia, a plaintive cry and tardy headache, indicated meningitis, notwithstanding the absence of contractures, of Kernig's sign, and of the meningitis stripe, with the retention of consciousness. The necropsy disclosed that there was no meningitis, but merely a pseudo-meningeal reaction, a suprarenal encephalopathy. He calls attention to the differentiating value of the reflex capillary spasm, as he calls the white line that follows the attempt to elicit the meningitic stripe. He thinks that the arterial hypotension with peripheral capillary dilatation induces the exact reverse of what is observed in true meningitis. The mechanical excitation induces contraction of the capillaries. This sign is important for the differentiation of the suprarenal syndrome. In both the cases described the suprarenals had been entirely destroyed by tuberculous processes, secondary in one case and probably primary in the other. The meninges were intact in each case.

Archiv f. Verdauungs-Krankheiten (Boas'), Berlin.

Last indexed XI, page 632.

43 (IX, No. 4.) *Utility of Percussion and Auscultation in Diagnosis of Stomach Affections. S. v. Pesthy (Budapest).—Ueber die Brauchbarkeit der Perkussions-Auskultation in der Diagnostik der Magenerkrankungen.
44 Proteolytic Power of Stomach Content. C. v. Rzentkowski (Warsaw).—Ueber die proteolytische Kraft des Mageninhaltes.
45 *Determination of Capacity of Stomach. N. P. v. Spanje (Amsterdam).—Das Manometer bei der Capacitätsbestimmung des Magens.

43. Percussion in Diagnosis of Gastric Affections.—This communication from von Ketly's clinic at Budapest states that percussion-auscultation has abundantly established its usefulness in more than 100 cases examined. The results were so incredible in 2 instances that they were regarded as failures of this method of functional diagnosis, but the operation disclosed that the remarkable abnormal condition indicated actually did exist. By this method the stomach outlines are traced in their natural position, size and form; it is simple and practicable, and is so perfectly harmless that it can be used where all other methods of functional diagnosis are contra-indicated. In combination with artificial insufflation of the stomach, percussion-auscultation imparts the most valuable information in regard to the muscular tone of the organ, distinguishing accurately between atony and hypertrophy. When the position of the greater curvature is determined by percussion-auscultation both before and during artificial distension of the organ, there is a difference of about 2 cm. in the normal stomach outlines in these conditions. If the difference exceeds 2 cm. the muscular tonicity is diminished. A difference less than 2 cm. indicates hypertrophy of the stomach musculature. We are able by this means to determine even slight degrees of atony which escape detection by the test meals or can be only uncertainly diagnosed by their aid. The information to be derived by means of percussion-auscultation in case of abdominal tumors is also extremely valuable. When the tumor is circumscribed its outlines can be accurately determined and its source of origin defined. A still further advantage of the percussion-auscultation method is that it enables manipulations to be dispensed with when necessary. Pesthy groups the various cases in his experience diagnosed by this method alone or in combination with others, giving the particulars of the findings in gastroptosis, dilatation, contracted stomach, etc. [Ivanoff has recently expatiated on the advantages of palpatory percussion, that is, learning to appreciate the percussion findings as experienced by the percussing muscles. He thinks that this refinement of percussion will be found very valuable in certain cases. His communication on the subject was mentioned in these columns recently, xli, page 1446, with special reference to his suggestion of the use of the tuning-fork for percussion-auscultation and palpatory percussion.—ED.]

45. Determination of Stomach Capacity by Means of the Manometer.—Spanje describes a manometer which he has devised for the purpose of determining the capacity of the stomach in patients accustomed to the use of the stomach tube. The apparatus looks rather complicated in the cut, he remarks, but in reality it is extremely simple, inexpensive and easily constructed. After aspirating until the organ is empty, air is allowed to enter until the patient begins to experience a sensation of distension, the maximal manometer pressure being 6 to 8 mm. of mercury. Spanje reports the particulars in a number of cases thus examined. In one there had been evidences of stomach trouble for sixteen years, and every two or three days the patient, a man of 44, vomited undigested food, with lactic acid and free HCl. The manometer indicated a stomach capacity of 2,700 c.c. at a pressure of 6 to 8 mm. mercury. On the diagnosis of stenosis pylori and ectasia ventriculi a gastro-enterostomy and entero-anastomosis were done. A small, hard, movable tumor was found at the pylorus. The stomach capacity had declined to 1,200 c.c. when the patient was dismissed cured. In another case the patient complained of violent pain at a manometer pressure of less than 1 mm. mercury—the symptoms indicating stenosis pylori. Perigastritis was assumed in consequence of the pain and the small capacity of the stomach, and this assumption was confirmed by the operation in this and a number of other cases. In health the fasting stomach is entirely empty and contains no air—the walls evidently being in contact. Percussion of the empty stomach is therefore of little use.

Centralblatt f. d. Grenzgebiete, Jena.

Last indexed XL, page 132.

46 (VII, No. 6.) *Renal Abscess and Perinephritis. E. Hersky.—Nierenabscess und Perinephritis. Collective Review. (Commenced in No. 1.)
47 (No. 10.) *Ueber die Puerperal-Eklampsie. J. Schnürer (Vienna). Collective Review. (Commenced in No. 3.)
48 Gonorrheal General Infection and Metastases. K. v. Hofmann (Vienna.)—Gonorrhoische Allgemeininfektion und Metastasen. Collective Review. (Commenced in No. 7.)
49 (No. 11.) Enuresis nocturna. J. Landau (Cracow). Collective Review.
50 *Ueber die Laparotomie bei tuberkulöser Peritonitis. D. G. Zesas (Berne). Collective Review.
51 (No. 16.) Changes in the Vascular Apparatus Persisting After Injuries. H. Hers (Breslau).—Ueber die nach Verletzungen zurückbleibenden Veränderungen des Gefässapparates. Collective Review. (Commenced in No. 11.)

52 (No. 16.) Pankreas-Cysten. M. Münzer (Breslau). Collective Review. (Commenced in No. 13.)
53 Volvulus des S romanum (sigmoid flexure). A. Baer. Collective Review. (Commenced in No. 15.)
54 (No. 19.) *Die multiple Neurofibromatose (Recklinghausen'sche Krankheit). C. Adrian (Strasburg). Collective Review. (Commenced in No. 3.)

[The Borderland Centralblatt.—The full title of this comparatively new journal is the "Centralblatt for the Borderland between Medicine and Surgery." It is issued irregularly as material accumulates. About 23 numbers have been issued in 1903, forming a volume of about 900 pages. It makes a specialty of comprehensive summaries of the international literature on the various subjects presented, with a running commentary by the reviewer. Each issue contains a number of abstracts from the borderland literature. It is in one sense a companion to the large Borderland Archives, better known as the *Mitteilungen a. d. Grenzgebieten*. Frequent reference is made to the work of the Americans in the articles in these publications.]

46. Renal Abscess and Perinephritis.—Herazky reviews 307 articles published on this subject of late years. The consensus of opinion is in favor of operating as soon as there is a well-founded suspicion of an abscess. The abscess formation is rapidly progressive and early intervention is required especially on this account. If the smallest abscess focus is left the incision has not accomplished its purpose, and Israel contends that the surgeon's task is not complete until he has exposed the kidney or its capsule so that it can be thoroughly palpated.

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47. Puerperal Eclampsia.—Schnürer's review embraces the literature from 1890 to June, 1902, a total of 758 articles. The average occurrence of eclampsia ranges from 2.25 per cent. of all the births in Queirel's experience to .12 per cent. in Veit's. Schauta reports .25 per cent. in 134,000 births and Inojew .53 per cent. in 111,047 births, the general average being .45 per cent. Autochthonous exclampsia occurred on an average in .19 per cent., that is, once in 525 births, although Döderlein's experience has been nearly three times as favorable as this. Schnürer gives a number of tables showing the stage, age, mortality, etc. The eclampsia developed during the pregnancy in 20 per cent., during delivery in 59 per cent., and during the puerperium in 21 per cent. The affection is most common in Russia, occurring in the proportion of 1 to 73 and 1 to 150 births, while in England the average proportion is 1 to 750 and Döderlein, at Würtemberg reports only 1 to 3,561. The average mortality was 21.85 per cent. Stroganoff has no mortality to report in his 58 cases, Dührssen 21 per cent. in 200 cases, and Wirtz 78 per cent. in 43 cases. The mortality of the children averaged 36.56 per cent. Here again Stroganoff has no mortality, while Zweifel reports 33 per cent. mortality among 103 children, Dührssen 53.4 per cent. in 146 children and Wirtz 69 per cent. Twins were noted in 6.93 per cent. of all the cases of eclampsia, and a very large proportion of all the eclamptic women were primiparæ, the percentage ranging from 60 to 90 per cent., except in Inojew's experience in which it was 43.7 per cent. (Stroganoff's method of treating eclampsia was described in THE JOURNAL, XXXIX, p. 727, 1902.)

50. Operative Treatment of Tuberculous Peritonitis.—Zesas concludes from his study of 69 articles that have been published on this subject, that it is risky to postpone operative intervention in tuberculous peritonitis in the hope of a spontaneous cure as it is of rare occurrence. An aseptic and cautious laparotomy with gentle detachment of adhesions never harms and frequently arrests the process or cures it. He reports 2 cases from his own experience in which complete cure has persisted for nine and five and a half years, both patients girls, 15 to 20 years of age.

54. Multiple Neurofibromatosis.—This comprehensive review is carried nearly through the entire year. It reviews the literature that has been published since Adrian's previous work on the subject in 1901. He concludes that the prognosis is not absolutely unfavorable so long as the central nervous system is not involved, or is not the exclusive seat of the affection. Some of the patients reach an advanced age, 60 to 88 years. The prognosis is obscured in many cases by the cachexia accompanying the condition which lowers the resistance to tuberculosis and other intercurrent affections. There is also a liability to malignant degeneration of the neurofibromata and a modification of the skeleton suggesting osteomalacia. The location of the tumors is also an important factor in the prognosis. Treatment is generally powerless, but avoidance of cutaneous irritations should be urged as a prophylactic measure and also other factors tending to depress the vitality. Local injections have had only transient effect. Operative removal offers little prospects of success on account of the tendency to recurrence. In one case on record resection of a tumor in the knee was followed by formation of tumors over the entire body. The recurrence is liable to present malignant characteristics. In one case treatment with suprarenal substance conquered the patient's asthenia, but the improvement was transient and the general condition grew worse as soon as the medication was suspended. Whitehouse has also reported improvement in one case under arsenic.

Mitteilungen aus den Grenzgebieten, Jena.

Last indexed page 1207.

55 (XII, Nos. 2-3.) *Leucocytes in Appendicitis. A. Federmann. Ueber Perityphlitis mit bes. Berücksichtigung des Verhaltens der Leukocyten.
56 *Hemorrhoids in Children. G. Reinbach (Breslau).—Hämorrhoiden im Kindesalter, zugleich ein weiterer Beitrag zur pathologischen Anatomie dieses Leidens.
57 *Importance of the Parathyroid Glands. Walbaum (Marburg). Ueber Untersuchungen über die Bedeutung der Epithelkörperchen beim Kaninchen.
58 *Ueber die iodlopathische Erweiterung des Esophagus. J. Lossen (Königsberg).
59 *Die chirurgische Behandlung der Colitis ulcerosa chronica. Nehrkorn (Heidelberg).
60 *Osmosis and Conductibility of Body Fluids. F. Engelmann (Hamburg).—Zur Lehre von den osmotischen Drucke und der elektrischen Leitfähigkeit der Körperflüssigkeiten.

55. The Leucocyte Curve in Appendicitis.—In Federmann's experience the leucocyte curve has varied with the three forms of appendicitis, the simple, the perforative and the gangrenous. The differences are due to the intensity of the infection, the reacting powers of the organism and the local conditions. Large numbers of leucocytes invariably differentiated incipient peritonitis from ileus without complications. An early, very high leucocytosis, up to 40,000 or 50,000, seems to be characteristic of benign, gynecologic peritonitis. In cases of benign perforation with rapid encapsulation the very high leucocytosis noted at first materially subsides by the third day with the temperature and other symptoms. In diffuse suppurative peritonitis continuing a progressive course the hyperleucocytosis subsides in the same way, but the other symptoms persist and grow worse. A leucocytosis of 20,000 after the fourth day with other severe symptoms, speaks strongly in favor of deficient encapsulation with a tendency to spread. The same symptoms by the end of the first week or later positively indicate a more or less encapsulated process. A high leucocytosis is in itself a favorable sign, while small numbers of leucocytes accompanying other severe symptoms are the expression of an already established general intoxication, and hence suggest the gravest prognosis. Surgical intervention is still indicated, however. Federmann writes from the Moabit Hospital at Berlin and concludes with the detailed reports of 23 cases.

56. Hemorrhoids in Children.—Reinbach classes hemorrhoids as true angiomata cavernosa and thinks that the tendency to their development is congenital. He has been studying the microscopic structure in both adults and children and gives the particulars here of specimens derived from a girl of 8. He has encountered them a number of times in children. Purely venous congestion may induce a clinical picture very much like that of true hemorrhoids.

57. Importance of the Parathyroid Glands.—Walbaum's experiments on rabbits have demonstrated that the epithelial corpuscles have an important function, apart from that of the thyroid gland. The outer seem to have a greater vital significance than the inner ones. After their extirpation the rabbits exhibited convulsions and progressive cachexia, and became dull, the fur rough. When these glands were trans-

planted they healed in place, but degenerated and the animals succumbed as without transplantation.

38. **Idiopathic Dilatation of Esophagus.**—Lossen's experience includes 5 cases. All had developed on a nervous basis; in one case the cardio-spasm had been favored by chronic inflammation of the esophagus. Radioscopy is an invaluable aid for the differentiation of the condition. He applied Fleiner's method of feeding by the stomach tube with good results, combating the cardio-spasm by means of a tablespoonful of oil before each meal. When feeding through the tube can not be satisfactorily continued and rectal feeding is insufficient, he advises not to delay gastrostomy too long.

59. **Surgical Treatment of Chronic Ulcerative Colitis.**—Nehrkorn is convinced that an artificial anus—preferably at the flexure—is decidedly to be preferred to mere entero-anastomosis. He believes also that the formation of a valve fistula by the Kader-Gibson technic has many advantages. For irrigations in the after-treatment he uses chamomile tea, dilute alcohol solutions of salicylic acid and occasionally boric acid, tannin or nitrate of silver. He reviews the literature on the subject, the total cases reported numbering 30, to which he adds 4. They include several published in THE JOURNAL. The operation was undertaken on the right side in 16 cases, with 6 complete successes and 3 failures; and on the left side in 9, with 7 complete successes and only one failure. These results speak in favor of an anus at the flexure. He appends the case history of a rapidly fatal case of severe dysentery restricted to the colon. The prompt surgical intervention was unable to avert the fatal termination, but he thinks it was justified even in such a desperate case.

60. **Osmotic Pressure and Electric Conductibility of Organic Fluids.**—[Engelmann has previously stated that he had found the electric conductibility a surprisingly constant figure in 200 tests of the blood serum. In a case of bile fistula in which the bile was tested every two hours, the freezing-point and the electric conductibility varied in parallel proportions, the slightest change in either being accompanied by a corresponding modification of the other. The concentration and conductibility of segregated urine also parallel each other in health, with minute precision. He emphasizes that this affords a valuable means of controlling the findings of each by means of the other test, and is especially valuable as the conductibility can be tested with minimal amounts of urine. —ED.] In the present article he reports further extensive research. The electric conductibility of the blood serum does not parallel the freezing-point in pronounced renal insufficiency. There does not seem to be any retention of electrolytes in these cases, while the concentration of the blood augments in proportion to the imperfect functioning of the kidneys. He also found that after intravenous infusion of 1,500 to 2,000 c.c. of a .6 per cent. salt solution the osmotic pressure of the blood speedily returned to its original value, even when it was high.

Münchener med. Wochenschrift, Munich.

61 (L., No. 47.) *Die Resultate der Appendicitis-Operationen in Jena während des letzten Semesters. Riedel.

62 *Measurement of Pressure in Right Auricle. G. Gaertner (Vienna).—Die Messung des Druckes im rechten Vorhof.

63 *Nile Blue Base as Reagent for Carbonic Dioxid in the Air. M. Heidenhain.—Die Nilblaubase als Reagens auf die Kohlensäure der Luft.

64 *Therapeutic Tests with Fluorescent Substances. H. v. Tappeiner and Jesionek (Munich).—Therapeutische Versuche mit fluorescirenden Stoffen.

65 Phototherapy of Lupus. Werther.—Ueber die Lichtbehandlung des Lupus mit der Finsen-Reynschen Lampe und die verwandten physikalischen Methoden.

66 Cow's Milk in Infant Feeding. V. Soxhlet.—Kuhmilch als Säuglingsnahrung.

67 Tubar-Graviditat und Unfallrente (accident insurance). Döderlein.

68 Ready-Made Nutrient Enemata. A. Schmidt.—Gebrauchsfertige Nährklystiere.

69 Truppen-Hygienische Erfahrungen in China. Wolfhügel.

70 (No. 48.) *Functional Diagnosis of Kidneys Without Catheterization of Ureters. F. Voelcker and E. Joseph (Czerny's clinic, Heidelberg).—Funktionelle Nierendiagnostik ohne Ureterenkatheter.

71 *New Optic Method of Determination of Albumin. E. Raehlmann.—Ueber ultramikroskopische Untersuchung von Lösungen der Albumin-Substanzen und Kohlehydrate und eine neue optische Methode der Eiweissbestimmung bei Albuminurie.

72 *Action of Röntgen Rays on Animals. H. Heineke.—Ueber die Einwirkung der Röntgenstrahlen auf Tiere.

73 Ueber Pathogenität des Löfflerschen Mäuse-Typhus-Bazillus beim Menschen. E. Trommsdorff (Gruber's Institute, Munich).

74 Determination of Specific Gravity of Living Human Subject. J. Wengler.—Bestimmung des spez. Körpergewichtes am lebenden Menschen. (See Jamin's article in No. 34.)

75 *Ueber Primäre Tuberkulose-Infektion durch den Darm (through intestines). O. Wagener (Kiel). (Commenced in No. 47.)

76 Zur Frage der chirurgischen Behandlung der Gastroptose. Hammer. (Commenced in No. 47.)

77 F. von Hecklinghausen, zu seinem 70 Geburtstage am 2 December, 1903.

61. **Appendicitis Operations at Jena.**—Riedel advocates early operating as soon as the diagnosis of appendicitis is established, without waiting for hyperleucocytosis. He urges education of the public so that the affection will be recognized in its early stages, and provision made for careful transportation of the patient—preferring a hand-borne litter to the usual modes of conveyance in the country and small towns. A litter should be kept on hand the same as a fire engine, ready for emergencies in such places. The earlier the operation the smaller the incision required and the less risk in the intervention.

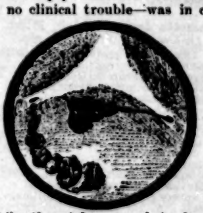
62. **Determination of Pressure in Right Auricle.**—Gaertner proclaims that it is possible to determine the pressure in the right auricle by observing the behavior of the veins in the arm when the arm is held upright. The veins become engorged when the arm is hanging down and collapse when the arm is raised. If the arm is raised very slowly it will be seen that the point at which the veins collapse is always at a certain level for a given person. The veins remain round and prominent as the arm is raised until this level is reached, when the walls flatten out. This point of subsidence of the veins is in health always at the level of the sternal end of the third, fourth or fifth ribs. The veins form a manometer column which allows the condition of the blood column within to be estimated. The slightest positive pressure distends the walls of the veins while they flatten out as soon as the pressure is zero or negative. In pathologic conditions the veins do not collapse until the arm reaches the level of the jugular vein, the eye or even the top of the head in extreme cases. The findings of this test invariably harmonized with other presumptive evidence of stagnation in the right heart. The subject sits erect, the back supported, the sternum vertical. The veins on the back of the hand and forearm are the best adapted for the test. The arm is raised passively by the examiner, with abduction at the shoulder, the muscles relaxed as much as possible, and both arms are tested in turn and several times in succession. The difference between normal and pathologic conditions is so marked that trifling inaccuracies are negligible. Gaertner uses a tape measure to determine the number of centimeters above the zero point—the sternal attachment of the upper margin of the fifth rib—and slips a pencil through a ring at zero in the tape measure for convenience in sighting the rib. He calls the pressure in the auricle VD (Vorhofsdruck), and expresses it in centimeters, representing the number of centimeters above the zero point, at which the "vein phenomenon" occurs. In valvular affections the pressure is plus 9, 19, 20 and 27. The highest pressure he ever encountered was 37 cm. In some cases this increased VD is the only objective sign of disturbances in the circulation. It is so striking that it is peculiarly adapted to impress the laity when necessary to convince others of the existence of disturbances in the circulation or respiration. It not only affords a certain diagnosis of stagnation in the right heart but enables us to measure its degree and its modifications as they occur under treatment. He also found that the test can be made with the legs, the subject reclining on a flat surface, the legs below the knee hanging down over the edge. The "vein phenomenon" occurs at the same level with both legs and arms in health, indicating that the intra-abdominal pressure may be regarded as nil. A difference between the findings with legs and arms will afford insight into the intra-abdominal pressure in pathologic conditions. When extreme accuracy is desired he uses a wooden standard with a sliding horizontal bar to determine the VD.

63. **Nile Blue Test for Carbonic Dioxid in the Air.**—Heidenhain describes a number of striking experiments that can be

made with this reagent. Among others, if a little of the brilliant orange solution of Nile blue is poured on a sheet of blotting paper held by one corner, it changes instantaneously to blue in the presence of carbonic dioxid in the air. He prepares the solution for this experiment by dissolving the stain in 80 per cent. alcohol and then shaking into it a little finely pulverized calcium hydrate (CaO). The result is a brilliant orange. It is so sensitive that even pouring the fluid into another vessel alters the tint as it takes up the carbonic dioxid from the air so quickly.

64. **Therapeutic Trials of Fluorescent Substances.**—THE JOURNAL has already mentioned von Tappeiner's announcements that certain fluorescent substances, in themselves not at all bactericidal, became extremely so when fluorescence was induced in them by sunlight or diffuse daylight. Further research has demonstrated that this action is effectual also on enzymes and certain toxins. Ricin, for instance, loses its characteristic property of agglutinating red corpuscles after being exposed to this fluorescence. Among the various fluorescent substances tested, eosin was the most pronounced in its action, not only on enzymes but also on toxins and on living cells. It was consequently selected for therapeutic trials. Superficial lesions were painted with a 5 per cent. aqueous solution of eosin and then exposed to the sunlight. Three cases of carcinoma, 10 of condylomata lata, 5 of lupus and several of other cutaneous affections were treated by this combination. In one case of destructive carcinoma of the nose and cheek on a woman of 76, after four weeks of this treatment the edges of the lesion have subsided, the suspicious zone of infiltration around it has completely vanished, the interior of the cavity shows fresh, healthy granulations, and there is already a strip of healthy cicatricial tissue 8 to 13 mm. extending through a part of the growth. A rodent ulcer of eighteen years' standing cleared up under six weeks of treatment to a healthy granulating surface with nothing to suggest the former condition, and two more weeks will evidently complete the transformation into healthy cicatricial tissue. The third case of cancer has now, after sixty days of treatment, a smooth cicatrix in the place of the former succulent, fast proliferating carcinomatous growth on the face. In lupus the lesions rapidly healed under the treatment when they were close to the surface. Deep-seated nodules were not benefited. The superficial ones, whether large or small, ulcerating or not, seemed to display the same tendency to heal as the carcinomatous tissue. Sound tissue is not materially affected. Eosin was given internally at the same time, but the particulars of this internal administration are not reported. Condylomata lata on the female genitalia rapidly subsided under this local treatment and a primary syphilitic lesion on the tongue also healed and the accompanying tumefaction of the regional glands spontaneously subsided. No further manifestations of the syphilis were noted in this case until sixteen weeks later, when a few roseola patches became apparent on the abdomen. A case of tuberculosis of the testicle and scrotum in a lad of 14 was treated in this way. The tumor gradually subsided and tubercle bacilli could no longer be found in the secretions after four weeks. Eosin was injected into the corresponding thigh. This case is still under treatment. All pains vanished soon after the eosin was first applied.

70. **New Method of Functional Diagnosis of the Kidneys.**—Voelcker and Joseph describe a simple means of determining the functional activity of each kidney without catheterization of the ureters or the use of a urine segregator. It consists in the injection of a stain which is eliminated exclusively by the urine, is non-toxic and passes unchanged through the body, not being transformed like methylene blue into colorless compounds, while it is not so soluble as the latter and hence does not diffuse through the tissues and organic juices other than the urine. They express surprise that this well-known stain—indigo carmin—has not been applied before to functional diagnosis of the kidneys as its advantages over other stains are so obvious. The maximum elimination through the urine occurs in thirty minutes, gradually subsiding to the end of the second hour, after which only minimal amounts can be detected to the end of the tenth hour. They describe their experiments and trials on dogs and then the application of the new method in the clinic. The technic preferred is the injection into the gluteal muscles of a fresh, 4 per cent. solution of carminum ceruleum (identical with indigotine I and indigo carmin). The solution is made with .4 gm. of indigo carmin in 10 c.c. of physiologic salt solution, injecting 4 c.c., warm. The fluid is rather a suspension than a solution. Twenty to thirty minutes after the injection the cystoscope is introduced into the bladder and the jets of strikingly blue urine can be seen emerging from the mouths of the ureters. The jets appear with some force and are directed toward the median line, and then the blue fluid gradually sinks to the bottom of the bladder. Even the novice in bladder examination has an unmistakably clear picture before him of the functioning of the kidneys. The cut shows this picture in a normal bladder. The jet is just spurting from one ureter, while that from its mate is sinking to the bottom. A number of instances are reported showing the importance of the information thus derived. In one case the symptoms indicated tuberculosis of the bladder. The lesions were so extensive that catheterization of the ureters would have been impossible. Attacks of pain developed in the right kidney region, with fever and cerebral symptoms. The right kidney was much enlarged. The indigo carmin test showed that no urine was being eliminated from the left kidney, which had caused no symptoms and was apparently normal. Consequently the idea of operating on the enlarged right kidney was abandoned and the fever ascribed to meningitis. The necropsy disclosed that the left kidney—which had given no clinical trouble—was in complete caseous



degeneration, while the right proved to be the only sound organ in the body. The new test saved the patient from an inevitably useless operation, to say the least. In another case a papilloma in the bladder nearly covered the mouth of one ureter and the patient suffered from hematuria. Other symptoms suggested the possibility that the papilloma in the bladder was merely a metastasis from the kidney, but no means were known by which the condition of the kidneys could be decided as the growth prevented catheterization of the ureter. Three years later the patient returned with pronounced anemia from the recurring hematuria, hemoglobin 20 per cent., and new papillomatous growths in the bladder. The indigo carmin test was applied, and at once blue urine spurted with equal force and of the same tint from each ureteral orifice, showing that the kidneys were functioning normally. The patient was restored to health by extirpation of the excrescences in the bladder. In these 2 cases this test is the only one known with which functional diagnosis was possible. Other cases are related showing the superior simplicity and ease of the test in comparison to others. It is particularly valuable when the ureter mouths are hidden from any cause, especially with prolapse of pelvic organs or hypertrophied prostate. The type of the elimination, the intervals, size, force and other properties of the jets are also valuable indices of the kidney functioning, impossible to mistake, and impossible to determine by other methods to the same extent. It may prove to be feasible to determine the specific gravity of the blue fluid from each kidney by injecting some fluid into the bladder whose specific gravity approximates that of the urine, noting whether the blue urine from one ureter rises or falls with the blue cloud from the other, or whether there is a difference between their behavior in this respect. Much time has been spent in the endeavor to establish certain stand-

ards of force, tint, etc., characteristic of certain affections of the kidneys, but this research is not yet concluded.

71. **Ultra-Microscopic Detection of Albumin.**—Raehlmann describes tests with the new microscope with intense focal illumination from the side which shows up particles only 1 to 10 microns in diameter. He has found that the supposedly dissolved particles of albumin in solutions of albumin in reality retain their typical identity and can be inspected through this microscope. This is true of all solutions of albumin, including the urine in albuminuria. All these particles are in constant motion. The transformation of glycogen into dextrin, grape sugar, etc., under the action of certain reagents can be watched under this microscope, although the fluid to the eye shows no indication of turbidity or precipitation.

72. **Action of Roentgen Rays on Animals.**—Heineke reports experimentation which showed that mice, rabbits and guinea-pigs succumbed in a few days after prolonged exposure to radium and Roentgen rays. The findings in the organs, with the exception of the spleen, were negative, but the spleen was always found small and dark colored, with other changes, indicating that the rays had a destructive action on the red corpuscles.

75. **Primary Tuberculosis by Way of the Intestines.**—Wagener found primary tuberculous infection of the intestinal or mesenteric glands in 13, that is, in 17.1 per cent. of 76 child cadavers, with discovery of the tubercle bacilli. Similar lesions were found in 3 others, but without the bacilli, making a total of 21.1 per cent. in which primary tuberculosis of these glands was manifest.

Gazzetta degli Ospedali, Milan.
Last indexed XLI, page 1139.

78 (XXIV, No. 122.) La sintomalogia delle dyspepsie. G. Campanella.
79 *Senso muscolare e fenomeno di Romberg. C. Mannini.
80 *Del siero antidifterico nella pneumonite e nella meningite infettiva: polivalenza dei sieri. M. Gay.
81 Cancroid on Lower Lip Completely Disappearing During Progress of Pernicious Malaria and Reappearing After Recovery. S. Portanova.—Un epitelioma del labbro inferiore scomparso nel decorso di una perniciosa malarica e riapparso dopo di questa.
82 Termoforo-Enterociisma. G. Bellini.
83 (No. 126.) *Relapses in Pneumonia. B. Lovera.—Osservazione sulle ricadute nella polmonite crupale.
84 Le iniezione subcongiuntivali di sublimato corrosivo nelle ulceri corneali. A. De Biasi.
85 *Annual Report from E. Maragliano's Clinic, 1902-3.
86 (No. 128.) Congenital Hernia from Standpoint of Industrial Insurance. C. Momo.—Le ernie congenite nella legge degli infortuni sul lavoro.
87 Myasis da Cephalomya ovis. S. Saitta. Seven cases.
88 *L'irrigatore porta spugna. G. B. Fazzari (Antonimina Reggio, Calabria).
89 (No. 131.) *Note sopra alcuni casi di scarlattina. G. Berghins. (See also A. de Fabritiis in No. 122.)
90 Relaxation of Muscles of Neck as Sign in Chloronarcosis. G. Pratti.—Sul valore del segno della nuca nella cloronarcosi.
91 Cura delle anemie e questione economica. L. Camuzzi.
92 *Sulla auto-sieroterapia nelle pleuriti essudativi. J. Donsello.
93 3 casi di erpes zoster complicansa della parotite. F. Orta.
94 (No. 134.) *Puncture of Spleen in Diagnosis of Typhoid Fever. Michelazzi.—La puntura della milza nella precoce diagnosi clinica differenziale tra forme tifiche e tifosimile.
95 Le modificazioni della milza e del timo in alcune anemie sperimentali. G. Petrone.
96 Enterocele crurale e varicocele crurale. R. Schiassi (Bologna).
97 Modificazioni degli organi del torace e di alcuni dell' addome in gravidanza e puerperio. G. dal Fabbro.
98 L'eczema dei bambini e la sua cura. A. Prandi.
99 *Sull' estratto di capsule surrenali. G. Migliacci.

79. **Romberg Sign and Muscle Sense.**—Mannini describes a case out of several in his experience in which the Romberg sign was marked but without any evidences of disturbance in the muscle sense. This sign is not, therefore, symptomatic of a lesion in the muscle sense in all cases.

80. **Polyvalence of Seruma.**—Gay reports rapid recovery in 2 cases of pneumonia after injection of antidiphtheria serum. He details the particulars of the cases before and after the injections and thinks that the benefit was unmistakable. He injected the serum also in a severe case of meningitis, but without arresting its fatal course.

83. **Relapses in Pneumonia.**—Lovera's 3 patients were 19, 38 and 61 years old, and the relapse occurred four, five and seven days after the crisis and apyrexia. The second attack terminated by lysis in each case. He has had another patient who has passed through eight attacks of pneumonia.

85a. **Endovenous Injections of Sublimate.**—Maragliano states that the experience at his clinic has shown that these injections can be made without the slightest inconveniences if a large vein is selected for them, and they are made in such a way that the blood continues to flow through the vessel and thus mixes continually with the fluid injected. The solution must be weak, 1 to 10,000 or 1 to 5,000, or even 1 to 1,000 is harmless if the above rules are strictly followed. He injected from 1 to 5 mgm. of sublimate a day in progressing doses in man, examining the blood from day to day. No changes could be detected in the blood except a slight leucocytosis. From experimental research on animals he concludes that the minimal toxic dose is 15 mgm. per kilogram in a rabbit. Intoxication with sublimate has a tendency to destroy the blood corpuscles, but this has nothing in common with the therapeutic doses of sublimate. The slow, minimal therapeutic intoxication induces a leucocytosis which probably generates immunizing substances active against both bacteria and toxins. This assumption harmonizes perfectly with what is observed after endovenous injections of sublimate in certain infectious diseases. They unmistakably increased the resisting powers of animals injected, conferred agglutinating power on the serum and preserved the animals against toxic doses of bacterial toxins. He succeeded in saving the animals from the results of experimental diplococcus and streptococcus peritonitis and from anthrax by endovenous injection of 1/50 mgm. of sublimate per kilogram in a weak solution. This result was obtained both by preliminary injections of small repeated doses, as well as by postponing the injections until after the infection. The researches reported establish the efficacy of small doses, and that the action of the drug is due not to its bactericidal power, but to the increase in the organic resistance and the production of antitoxic material. Other drugs were tested in endovenous injections, and the dosage found for tincture of iodin, antipyrin, Fowler's solution, etc. One patient with rebellious hemoptysis was treated by endovenous injection of 150 c.c. of a 2 per cent. solution of gelatin, which arrested the hemorrhage almost instantaneously. These researches were conducted mostly by Mariani and included much experience with endovenous injection of oxygen, demonstrating its efficacy in certain conditions and its harmlessness.

85b. **Defense of the Organism Against Tuberculosis.**—Live tubercle bacilli were injected into the subcutaneous connective tissue in various animals, and their fate studied. Sooner or later all were swallowed by leucocytes. This occurred most promptly in the dog—in less than five days—and most slowly in the guinea-pig. The phagocytosis was more rapid and pronounced in the animals previously artificially immunized. Tubercle bacilli injected directly into the lung were also destroyed by phagocytosis.

85c. **Immunization Against Tuberculosis.**—Maragliano describes his researches in this line which he has been conducting since 1893. He remarks that he has now in his laboratory several rabbits which are immunized to such an extent that they are able to resist endovenous injections of fresh cultures of the most virulent tubercle bacilli. The method of immunization adopted by Behring differs from that with which Maragliano has been working for several years since he established the possibility of immunizing animals in 1895. He has found lately that the serum of immunized animals may attain remarkable agglutinating power. One cow agglutinates at 1 to 400 and one rabbit at 1 to 2,000. The serum loses its agglutinating power if heated to 55 and 60 C., but regains it on addition of normal serum. Its antitoxic power is not affected by warming. The presence of tuberculous poisons, proteins and toxins, in a serum retards or prevents agglutination. The antitoxic and agglutinating properties are not always parallel. After injection of an emulsion of living tubercle bacilli into the peritoneum of guinea-pigs the bacilli remain free in the peritoneal cavity and are not taken up by the leucocytes to any extent, although there is slight leucocytosis. Preliminary injection of tuberculin prevents the leucocytosis, but does not affect the phagocytosis. Injection of a fatal toxic dose of tuberculin neutralized by antitoxic serum

induces a permanent leucocytosis and facilitates phagocytosis. Preliminary injection of antitoxic serum induces marked leucocytosis and intense phagocytosis. Marzagalli and Figari of the clinic have succeeded in extracting from the protoplasm of living and virulent bacilli a substance with which they immunize rabbits, their serum acquiring high agglutinating and bactericidal powers. This substance is sterile and contains no bacilli. When injected into rabbits and guinea-pigs by any route it does not cause either local or general reaction, and no traces of tuberculous lesions can be discovered later. The serum of animals thus immunized agglutinates homogeneous cultures of tubercle bacilli in the proportion of 1 to 2,000 (Courmont-Arloing method). These serums lose their agglutinating power in great measure when heated to 60 C. It is banished completely by keeping them at this temperature for three hours, but strange to say, they reacquire the agglutinating power again by the addition of even a small quantity of normal serum, *per se*, free from any clumping power. These serums added to cultures of tubercle bacilli check their development and colonies transplanted are unable to grow further. Virulent tubercle bacilli treated with these serums for four hours to five days and then injected into animals either under the skin or into the peritoneum or a vein, do not induce infection. The animals survive while all the controls die in less than thirty days. A number of rabbits and guinea-pigs in the laboratory are still thriving and increasing in weight, although they have been repeatedly injected during the course of three months with virulent bacilli treated with these serums. They evidently contain antitoxins and antibodies in conspicuous amounts and are extremely bactericidal besides. Maragliano regards these facts as a new victory in the potency of serums, which may be fraught with new and great therapeutic significance. The fluid with which the serum is obtained is derived from the protoplasm of tubercle bacilli and is able to substitute in practice the homogeneous cultures required by the Courmont-Arloing technic of agglutination tests. This places these tests within easy reach of the general practitioner. Any serum endowed with agglutinating power causes precipitation with this fluid. The suspected serum is placed in a test tube and above it a layer of this solution of bacillus pulp. A ring of coagulation forms at the point of contact if the serum possesses clumping power and not otherwise.

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85d. **Further Research on Tuberculosis.**—Among the other subjects studied and described may be mentioned the morphologic modifications of the tubercle bacillus on various media; the toxic action of bacilli freed from fats; the presence of the bacilli in the circulating blood and in the urine, and extensive experimental research on tuberculosis in fowls and cattle. Sciallero had charge of research on injection of bacilli into various tissues and announces that there is little if any defensive reaction when living bacilli are injected into the tissues as the products of the vital activity of the bacteria have a demoralizing and destructive action. The bodies of the dead bacilli, on the contrary, when injected into animals stimulate the cells to produce materials for defense. The method of injecting a suspected fluid into the mammary glands of guinea-pigs suckling young was given a trial. Jemma thus injected some cerebrospinal fluid from three subjects with tuberculous meningitis. The scanty bacilli in the fluid rapidly proliferated in the mammary glands, and in less than a week were clearly evident in every instance. This technic is particularly useful for comparatively rapid differentiation in dubious cases, as it is so simple and certain. Further research has confirmed the importance of the size of the heart for the prophylaxis and prognosis of tuberculosis. Lanza found that the eosinophiles increased in every case examined, parallel with the progress of recovery. His tests were made with the serum from blisters, the subjects all children. Scanty bacilli in urine were detected by adding a little blood serum to a quart of urine, boiling, decanting the fluid and treating the coagulated sediment with gastric juice, then centrifuging and examining the sediment for bacilli.

85e. **Serotherapy of Tuberculosis.**—In this as in the previous years the adult patients with advanced tuberculosis were not benefited permanently by the treatment with serum from the immunized animals. As soon as they regained a little strength they abandoned treatment and returned to their occupations. The results in children were much better. In 3 out of 5 children with pulmonary tuberculosis treatment with the tuberculosis antitoxin has resulted in a permanent clinical cure. The other two with the acute bronchopulmonary form were not benefited. Among 38 out-patients there have been 6 clinical cures and 21 improvements, some of them amounting almost to a cure. Maragliano in conclusion reiterates his former assertions that nine years of experience have only confirmed him in the assumption that serum treatment is the only possible method of cure and that its success depends on the co-operation of the organism. He deplores the number of lives lost every year that might have been saved by serum treatment if the profession would abandon their prejudices against it and institute it in time. His assistants have demonstrated that the serum can be administered by the mouth, which removes one of the greatest objections against it. Thirteen patients in the clinic were treated by this route alone, and in 2 there was a clinical cure, although one was a febrile case. Five out-patients were also treated by the mouth alone, and in 2 there has been a clinical cure. He is confident that his research on the immunization of human beings will soon be crowned with success, although he does not care to publish anything further in regard to it at present.

88. **Sponge Irrigator.**—Fazzari's instrument aims to apply medication to the lesions in the urethra for hours at a time and exactly at the points where it is needed. A metal tube screws into a curved tip which fits into the bladder. A small cylinder cut from a sponge slips over this tube and a metal sheath fits over the tube and sponge, made in halves which fit together, the whole forming an instrument like an ordinary catheter when put together. It is inserted into the urethra and the outer sheath is then removed, one half at a time. The sponge is then moistened with the desired antiseptic through the central tube, the fluid impregnating the sponge through the holes beneath it.

89. **Scarlet Fever.**—In the epidemic described by Berghinz there were about 90 cases of true scarlet fever; the majority were marked by an acute, hemorrhagic nephritis. In another series of cases the hemorrhagic nephritis occurred alone, without any scarlet fever or other infectious preliminaries, but the development of true scarlet fever then or later in other members of the family indicated its nature. In some cases the hemorrhagic nephritis occurred with a measles-like rash. In another there was no exanthem but a suppurating mastoiditis accompanying the acute, hemorrhagic nephritis. De Fabritiis reports an epidemic of scarlet fever marked by its benign character, but insists that the way in which the epidemic still persists imposes the necessity for prophylactic measures the same as during a more malignant epidemic. Some modification of the soil may entail virulency at any time.

92. **Auto-Serotherapy of Pleuritis with Effusion.**—Five patients were treated by Donsello by withdrawal of 5 c.c. of the pleural effusion and immediate injection of 3 c.c. of the same under the skin of the forearm or abdomen. The patients recovered and he is convinced that this treatment was responsible for the prompt absorption of the effusion and the copious diuresis that followed. In one case he was obliged to aspirate the effusion owing to serious complications on the part of the lungs, but it did not collect again.

94. **Puncture of Spleen for Early Diagnosis of Typhoid.**—Michelazzi advocates puncture of the spleen in dubious cases as the best means of differentiating typhoid. It is superior to making cultures from the venous blood as there are liable to be associated micro-organisms, while the typhoid germs usually locate exclusively or principally in the spleen. Puncture of this organ is simple and harmless.

99. **Suprarenal Extract.**—Miglioli presents arguments to prove that suprarenal extract is as much a specific for akinesis of the muscular system as strychnin is for akinesis of the nervous system.

Books Received.

Acknowledgment of all books received will be made in this column, and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician to the Medical Dispensary of the Jefferson Medical College. Volume IV. December, 1903. Diseases of Digestive Tract and Allied Organs. Liver, Pancreas and Peritoneum—Anesthetics, Fractures, Dislocations, Amputations, Surgery of the Extremities, and Orthopedics—Genito-Urinary Diseases—Diseases of the Kidneys—Physiology—Hygiene—Practical Therapeutic Referendum. Cloth. Pp. 444. Price, $2.50. Philadelphia and New York: Lea Brothers & Co. 1903.

THE LYMPHATICS. General Anatomy of the Lymphatics, by G. Delamere. Special Study of the Lymphatics in Different Parts of the Body, by P. Poirier, Professor d'Anatomie a la Faculté de Médecine a Paris, Chirurgien des Hôpitaux, and B. Cunéo, Professeur agrégé a la Faculté de Médecine de Paris. Authorized English Edition by Cecil H. Leaf, M.A., M.B. (Cantab.) F.R.C.S. (Eng.), Assistant Surgeon to the Cancer Hospital. With 117 Illustrations and Diagrams. Cloth. Pp. 301. Price, $5.00 net. Chicago: W. T. Keener & Co. 1903.

DEPARTMENT OF PUBLIC HEALTH AND CHARITIES, Having the Care, Management, Administration and Supervision of the Charities, Almshouse, Hospital and All Other Similiar Institutions, the Control or Government of Which Is Intrusted to the City. The Mayor of Philadelphia, Hon. John Weaver. Director of Public Health and Charities, Edward Martin, M.D. Assistant Director, Mr. George W. Sunderland. Philadelphia Hospital Superintendent, Robert H. Smith. Chief Resident Physician, M. H. Biggs, M.D. Cloth. Pp. 176.

TEXT-BOOK OF OPERATIVE SURGERY: By Dr. Theodore Kocher, Professor of Surgery and Director of the Surgical Clinic in the University of Bern. Authorized Translation from the Fourth German Edition. By Harold J. Stiles, M.B., F.R.C.S. Edin., Surgeon to the Royal Edinburgh Hospital for Sick Children. With 253 Illustrations. Cloth. Pp. 640. Price, $5.00 net. London: Adam and Charles Black. New York: The Macmillan Co. 1903.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES, Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By Various Writers. A New Edition, Completely Revised and Rewritten. Edited by Albert H. Buck, M.D. New York City. Volume VII. Illustrated by Chromolithographs and 688 Half-tone and Wood Engravings. Cloth. Pp. 951. Price, $7.00 per volume. New York: Wm. Wood & Co. 1904.

A COMPEND OF DENTAL PATHOLOGY AND DENTAL MEDICINE, Containing the Most Noteworthy Points on the Subjects of Interest to the Dental Student and a Section on Emergencies. By George W. Warren, A.M., D.D.S., Professor of Principles and Practice of Operative Dentistry, Penn. Coll. of Dental Surgery, Philadelphia. Fourth Edition, Illustrated. Cloth. Pp. 180. Price, 80 cents. Philadelphia: P. Blakiston's Son & Co. 1903.

ESSENTIALS OF PELVIC DISEASES WITH ILLUSTRATIVE CASES. By H. Stanmore Bishop, F.R.C.S. Eng., Hon. Surg. Ancoats Hospital, Manchester. And an Appendix on Examination of Blood, etc. By Charles H. Melland, M.D., (Lond.) M.R.C.P., Hon. Physician Ancoats Hospital, Manchester. Cloth. Pp. 297. Price $3.00 net. New York: William Wood & Co. 1903.

COMPEND OF DISEASES OF THE EAR, NOSE AND THROAT. By John Johnson Kyle, B.S., M.D., Lecturer on Otology, Rhinology and Laryngology and Assistant to the Chair of Surgical Pathology in the Medical College of Indiana. 85 Illustrations. Cloth. Pp. 280. Price, $0.80. Philadelphia: P. Blakiston's Son & Co. 1903.

FOURTH ANNUAL REPORT OF THE WORK OF THE CANCER LABORATORY of the New York State Board of Health. Conducted at the Gratwick Research Laboratory, University of Buffalo. For the Year 1902-3. Transmitted to the Legislature February 1, 1903. Paper. Pp. 161. Albany: Evening Union Company. 1903.

HOW TO ATTRACT AND HOLD AN AUDIENCE. A Popular Treatise on the Nature, Preparation and Delivery of Public Discourse. By J. Berg Esenwein, A.M., Lit. D., Professor of the English Language and Literature in the Pennsylvania Military College. Cloth. Pp. 272. Price, $1.00. New York: Hinds & Noble.

THE RIGHT TO LIFE OF THE UNBORN CHILD. A Controversy Between Prof. Hector Treub, M.D., Reverend R. Van Oppennay, D.D., S.J., Prof. Th. M. Vlaming, M.D. With an Appendix on a New Method of Operating, Ejecting the Fetus Alive. Cloth. Pp. 125. Price, $1.00. New York: Joseph F. Wagner.

LIST AND STATION OF THE COMMISSIONED AND WARRANT OFFICERS OF THE NAVY OF THE UNITED STATES, AND OF THE MARINE CORPS on the Active List and Officers on the Retired List Employed on Active Duty, July 1, 1903. Paper. Pp. 131. Washington: Government Printing Office. 1903.

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New Patents.

Patents of interest to physicians, Nov. 17 to 24:

744510. Making albuminoid substances from maize. Eugene Donard and H. Labbe, Paris, France.

744512. Suspensory bandage. Edward R. Drake, DeLand, Fla.

744096. Ozoniser. Marius Otto, Paris, France.

744603. Atomiser. John D. Pierce, Philadelphia.

744613. Ophthalmometer or other tables. Wm. F. Reimold, Philadelphia.

744128. Surgical chair. Wm. I. St. John, Detroit.

744656. Fountain syringe. Ottile Wider, Washington, D. C.

744663. Carbonising apparatus. Bernhard Zwillinger, New York.

744667. Carbonising. Bernhard Zwillinger, New York.

744668. Apparatus for carbonising. Bernhard Zwillinger, New York.

744569. Carbonising and cooling down the charge. Bernhard Zwillinger, New York.

744670. Carbonising material. Bernhard Zwillinger, New York.

744713. Device for correcting spinal curvature. Carl G. P. Blomqvist, Omaha.

744718. Massage appliance. Isabel Cassidy, New York.

745097. Preparing fat-free casein. Otto Eberhard, Ludwigshaut, Germany.

745105. Pasteurizer. Aage Jensen, Topeka, Kan.

744766. Fumigating candle. Ernest Kimmich, Detroit.

745021. Movement-cure apparatus. John J. Lewin, Palo Alto, Cal.

744782. Steriliser. Sidney E. Morse. New York.

745237. Label retainer for salve boxes, ointment boxes, etc. Clarence A. Myers, Atlantic City, N. J.

744978. Disinfectant vessel. Heinrich Pfluger, Frankfort-on-the Main, Germany.

744801. Artificial limb. James F. Rowley, Chicago.

745284. Surgical appliance. Albert V. Todd, Denver.

745028. Surgical bandage. Justin K. Toles, Chicago.

745128. Electricity in electric therapeutics and electric treatment. Louis Williams, Seattle, Wash.